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1971/72

San Diego State

General Catalog
1971-72

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Other Publications of San Diego State

("S" indicates student publication.)

Title	Publisher
Alumni Newsletter	SDS Alumni
Aztec Engineer (S)	School of Engineering
Bulletin of the Graduate Division	Graduate Division
Bulletin, Imperial Valley Campus	Director, Imperial Valley Campus
Class Schedule	Registrar
Daily Aztec (newspaper) (S)	Associated Students
Del Sudoste (yearbook) (S)	Associated Students
Discover (Extension bulletin)	Dean of Extended Services
El Campanario	Alumni Association
Journal of Business (S)	School of Business Administration
The New Scholar (S)	School of Social Work
Phoenix (literary magazine) (S)	English Department
Public Interest Calendar	Publications Bureau
The Redbook (student directory) (S)	Alpha Phi Omega
Summer Sessions Bulletin	Dean of Summer Sessions
This is San Diego State	Dean of Activities
Various monographs	San Diego State Press

General Catalog 1971-1972, volume 58. San Diego State, 5402 College Avenue,
San Diego, California 92115.

Preparation of this catalog, completed in January of each year, is under the direction of the Vice President for Academic Affairs. The catalog may be purchased, starting in May of each year, at the Aztec Shops on campus for \$1 plus 5% sales tax, a price established by the Board of Trustees of the California State Colleges. To order by mail, send \$1.35 directly to the Aztec Shops, San Diego State, San Diego, Ca 92115.

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San Diego, California

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San Diego State

General Catalog 1971-72

San Diego, California

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Academic Calendar 1971-72

September 13-17	Orientation
September 20	Classes begin
October 11	Columbus Day, holiday
October 25	Veteran's Day, holiday
November 25-26	Thanksgiving recess
December 20-January 1	Winter recess
January 3	Classes resume
January 17-18	Study and consultation
January 19	Finals begin
January 28	End, fall semester
January 31-February 4	Orientation
February 7	Classes begin
February 12	Lincoln's birthday, holiday
February 21	Washington's birthday, holiday
March 27-31	Spring recess
April 3	Classes resume
May 29	Memorial Day, holiday
May 29-30	Study and consultation
May 31	Finals begin
June 4	Baccalaureate ceremony
June 9	Commencement
June 26-August 4	Summer Term I
August 7-25	Summer Term II

The California State Colleges

Academic year 1971-72 marks for the California State Colleges the beginning of their second decade of service to the people of California as a unified system of public higher education—the largest such system in the Western Hemisphere and one of the largest in the world. Brought together as a system under an independent Board of Trustees as a result of the Donahoe Higher Education Act in the early 1960's, the California State Colleges now number nineteen, covering the state from Humboldt State College in the north to San Diego State College in the south. Current enrollment exceeds 244,000 full- and part-time students, with a faculty of approximately 14,000.

Responsibility for the California State Colleges is vested in the Board of Trustees, whose members are appointed by the Governor, and the Chancellor, who is the executive officer of the system. The Trustees and the Chancellor develop systemwide policy, with implementation taking place at the campus level. The Academic Senate of the California State Colleges, made up of elected representatives of the faculty from each college, recommends academic policy to the Board of Trustees through the Chancellor.

Each college in the system has its own unique geographic and curricular character, but all emphasize the liberal arts and sciences. Programs leading to the bachelor's and master's degrees are master-planned to anticipate and accommodate student interest and the educational and professional needs of the State of California. A limited number of joint doctoral programs are also offered. Although there is increasing recognition of the importance of research to the maintenance of quality teaching, the primary responsibility of the faculty continues to be the instructional process.

While San Jose State College, the oldest, was founded over a century ago, prior to World War II only seven State Colleges were in existence, with a total enrollment of 13,000. Since 1947, twelve new colleges have been established, and sites have been selected for additional campuses in Ventura, San Mateo, and Contra Costa counties. California State College, Bakersfield, the newest, was opened to students only last year. Enrollment in the system is expected to pass 300,000 by 1980.

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The Colleges

S = on semester system; Q = on quarter system.

California State College,
Bakersfield (Q)
9001 Stockdale Highway
Bakersfield, California 93309
Paul F. Romberg, President

California State College, Dominguez
Hills (Q)
1000 East Victoria Street
Dominguez Hills, California 90247
Leo F. Cain, President

California State College, Fullerton (S)
800 North State College Boulevard
Fullerton, California 92631
L. Donald Shields, Acting President

California State College,
Hayward (Q)
25800 Hillary Street
Hayward, California 94542
Ellis E. McCune, President

California State College, Long
Beach (S)
6101 East Seventh Street
Long Beach, California 90801
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California State College, Los
Angeles (Q)
5151 State College Drive
Los Angeles, California 90032
John A. Greenlee, President

California State College, San
Bernardino (Q)
5500 State College Parkway
San Bernardino, California 92407
John M. Pfau, President

California State Polytechnic College,
Kellogg-Voorhis (Q)
3801 West Temple Avenue
Pomona, California 91766
Robert C. Kramer, President

California State Polytechnic College,
San Luis Obispo (Q)
San Luis Obispo, California 93401
Robert E. Kennedy, President

Chico State College (S)
Chico, California 95926
Stanford Cazier, President

Fresno State College (S)

Shaw and Cedar Avenues

Fresno, California 93726

Norman A. Baxter, President

Humboldt State College (Q)

Arcata, California 95521

Cornelius H. Siemens, President

Sacramento State College (S)

6000 J Street

Sacramento, California 95819

Bernard L. Hyink, President

San Diego State College (S)

5402 College Avenue

San Diego, California 92115

Malcolm A. Love, President

San Fernando Valley State

College (S)

18111 Nordhoff Street

Northridge, California 91324

James W. Cleary, President

San Francisco State College (S)

1600 Holloway Avenue

San Francisco, California 94132

S. I. Hayakawa, President

San Jose State College (S)

125 South Seventh Street

San Jose, California 95114

John H. Bunzel, President

Sonoma State College (S)

1801 East Cotati Avenue

Rohnert Park, Cotati, California 94928

Thomas H. McGrath, President

Stanislaus State College (Q)

800 Monte Vista Avenue

Turlock, California 95380

Carl Gatlin, President

Introducing San Diego State

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President Emeritus

President

Assistant to the President

Executive Dean

Administrative Analyst

Director of Institutional Studies

Facilities Planning Assistant

Manager, ADP Services

Vice President, Administration

Assistant to the Vice President, Administration

Assistant to the Vice President, Administration

Director of Centro de Estudios Chicanos

Director of Educational Opportunities Program

Director of Educational Opportunities Program

Publications and Public Relations Manager

General Manager, KPBS-TV-FM

Director of Alumni Association

Director of International Projects

Director, San Diego State College Foundation

Controller

Development Officer

Vice President, Academic Affairs

Dean of Academic Planning

Associate Dean, Curriculum

Associate Dean, Faculty Personnel

Associate Dean, Staffing and Reporting

Dean of Extended Services and Summer Sessions

Director of Audio-Visual Services

Coordinator of Extended Services

Coordinator of Summer Sessions

Dean of Graduate Studies

Associate Dean of Graduate Studies

Dean of Undergraduate Studies

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Director, Mexican-American Studies

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Manville R. Petteys

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Deans of Schools and Colleges

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Anthropology, Mary E. Shutler	History, Dennis E. Berge
Classical and Oriental Languages, Steven C. Schaber	Philosophy, Patricia A. Crawford
Economics, Robert E. Barkley	Political Science, Richard C. Gripp
English, Lowell Tozer (Acting)	Religious Studies, G. Ray Jordan (Acting)
French and Italian, Hilda B. Nelson	Sociology, Thomas L. Gillette
Geography, Richard D. Wright	Spanish and Portuguese, James L. Walsh
German and Russian, Harry W. Paulin	

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Art, John H. Dirks
Athletics, O. Kenneth Karr, Jr.
Drama, Don W. Powell
Health Science and Safety, William
C. Burgess
Home Economics, Donald W. Thiel
Industrial Arts, Wirt L. McLoney
Journalism, Eric M. Odendahl
Music, J. Dayton Smith

Nursing, Dora M. Blackmon
Physical Education, William H.
Phillips, Jr.
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Studies, Robert F. Wilcox
Recreation, Ray R. Butler
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Speech Pathology and Audiology,
Sue W. Earnest
Telecommunications and Film, Robert
E. Lee

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Wedberg, Associate Deans

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Biology, William Hazen
Botany, Hale L. Wedberg
Chemistry, Earl P. Wadsworth, Jr.
Geology, R. Gordon Gastil
Mathematics, Calvin V. Holmes

Microbiology, William L. Baxter
Physical Science, Norman F. Dessel
Physics, Jacques D. Templin
Psychology, Robert Penn
Zoology, Richard E. Etheridge

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Civil Engineering, Iraj Noorany

Electrical and Electronic Engineering,
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ents and Teachers, Inc.

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Imperial Valley

Faculty

Professors: Ikeda, H., Rodney (Director)

Associate Professors: Baldwin (Associate Director), Smith, A.

Assistant Professors: Ayala, Burton, J., Duling, Franklin, Harmon, Hill, R., Ikeda, M., King, Polich, Rice, Spencer, Story, Wilson, G.

Lecturers: Feldman, Hinshaw, Holland, Jucknath, Nadeau, Ortega, Tsiaperas

The Imperial Valley campus is a division of San Diego State. As such, it is fully accredited. Operating as a separate campus, its primary function is to provide collegiate instruction for the desert area of South-eastern California.

The campus is located at Seventh Street and Heber Avenue in Cal-exico, adjacent to Rockwood Plaza, a park near the center of the city. The buildings housing this campus are of early Spanish style architecture, complementing the geographic location which is within walking distance of Mexicali, Baja California, Mexico, a city of approximately 500,000 population. The campus is 120 miles east of San Diego via U.S. Interstate Highway 8. Its buildings are fully refrigerated in the summer.

The program at this campus is an integral part of San Diego State and is under the general jurisdiction of the Vice President for Academic Affairs. The curriculum includes the recommended upper division and postgraduate program of courses leading to a bachelor's degree and the Standard Teaching Credentials with specializations in elementary, secondary, and special education. In addition to its regular program, the campus assists in the administration of extension courses for the area.

A major function of this campus is to foster better understanding and relations between Mexico and the United States. Since the campus is located within walking distance of the Mexican metropolis of Mexicali, the student has a unique opportunity frequently to visit a foreign country and enjoy its educational, cultural, and recreational attractions. Mexicali is linked by highway, bus, trains and airplane to the rich cultural heritage of Hermosillo, Guaymas, Mazatlan, Guadalajara, and Mexico City.

The climate of Imperial Valley is dry and mild most of the college school year, with dune bugging, water skiing in the nearby Salton Sea and Gulf of California and golfing and hiking the year around.

The full-time faculty and many of the part-time faculty are regular members of the San Diego State instructional staff. Serving at the Imperial Valley campus are full-time resident faculty members in the areas of anthropology, art, drama, English, geography, history, mathematics, political science, psychology, sociology, Spanish, elementary education, secondary education, and special education. More than fifty per cent of the full-time faculty possess the doctoral degree. Part-time faculty, selected from outstanding educators of Imperial Valley, augment the instructional programs of the Imperial Valley Campus.

Since the student-faculty ratio is low, personal student counseling can be provided. Each student is assigned a faculty adviser who assists him in arranging his program so that he is better able to realize his educational and occupational plans.

Program

The program at the Imperial Valley campus is restricted to upper division and postgraduate courses applicable to a bachelor's degree and the Standard Teaching Credential. In general, the programs are similar to those described in this catalog for elementary and secondary teaching; however, not all majors and minors are available at Imperial Valley campus. Presently, the campus offers major programs in Spanish, English, social science, fine arts, history, and Latin American studies. Authorized programs to be added include mathematics, sociology, art, music, political science, and economics.

The Imperial Valley campus is designed to serve the needs of the following: (1) community college graduates, (2) transfer students who have satisfactorily completed two or more years of college work with an accredited college, (3) persons now teaching, but who want to complete requirements for a bachelor's degree and/or a teaching credential, (4) inservice teachers holding either a provisional credential or a partial fulfillment of requirements credential, and (5) college graduates who wish to complete the requirements for a regular teaching credential.

For those transfer students needing certain lower division college work in connection with their work at this campus, there is available in the area the Imperial Valley College, College of the Desert, Mt. San Jacinto College, Palo Verde College, and Arizona Western College. These are public community colleges offering the first two years (60 units) of college work.

A schedule of classes, with instructions for registration, is published each semester and can be obtained on request from the Director approximately six weeks before the dates of registration. All tests required for the programs offered at this campus are given there.

This campus has a limited experimental student exchange with the two Mexican higher educational institutions in Mexicali, Baja California. Qualified students may be selected to attend classes for elective credit at either CETYS or Universidad Autonoma de Baja California.

Registration and Commencement

Registration for all classes offered at Imperial Valley Campus is held at the beginning of each semester (Fall, Spring, and Summer) at the Calexico Campus. Students who are continuing, or have been admitted or readmitted by the college, will be mailed detailed instructions for registration. Any student who is not a continuing student (i.e., was not officially enrolled the previous semester, fall to spring or spring to fall, or is seeking admission after having attended another college) must file the appropriate application for admission forms with the Director's

office at Calexico. Students in previous attendance at the San Diego Campus should notify both the Director's office and the Registrar's office of their intention to enroll for courses at Calexico.

Commencement exercises are held once a year in Calexico at the end of the spring semester. Those students who were graduated at midyear, plus those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session are encouraged to attend.

Physical Facilities: Offices, Classrooms, Student Union, Bookstore, Library

The campus consists of a cluster of four large buildings set in a six acre landscaped area in the center of the city of Calexico. The buildings are of early traditional Spanish architecture, with thick plastered walls and red tiled roofs.

The administration offices are located to the east of the central building. Classrooms are located in all buildings on the campus. All are large, comfortable, and equipped with refrigerated or heated air conditioning to fit the season. All resident faculty members maintain offices on campus.

Facilities are provided for student use in the student union consisting of a building entirely separated from the office and classroom areas. The building is furnished with television, sofas, lounge chairs, small tables, and easily movable chairs and can be used for conferences and meetings. Snack facilities are also available to students. The Associated Student Body Offices are located in the administration office building.

Books and other materials may be purchased at the start of each semester at the campus bookstore. In addition to class textbooks, paperback books on a variety of topics and supplies are available to students.

The Imperial Valley Campus library is housed in the south wing of a three building complex. It contains over 20,000 books, 2,500 pamphlets, and 200 periodicals. Stacks are separated from the study-reference area. Additional loan privileges are available to students and faculty through the library at the San Diego Campus and the Southeastern California area public and school district libraries. Books and reference materials are also available from the two Mexican collegiate institutions located in Mexicali, Baja California, Mexico.

A basic collection of audio-visual equipment is available for classroom use. Films and other instruction materials are available to the staff and students through the Audio-Visual Departments of the San Diego Campus and of the Imperial County Education Center. Films are also rented from outside sources as needed.

Placement, Employment, and Information

The college provides a centralized placement service in cooperation with the School of Education. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Staff members maintain contact with schools for teacher

placement. Present conditions result in more elementary teaching position vacancies than the campus has graduates.

Further information on admission, registration, programs, and classes may be obtained by writing the Director, Imperial Valley Campus, San Diego State, 720 Heber Avenue, Calexico, CA 92231, or calling 357-3721.

San Diego State

San Diego State began in 1897 as a two-year normal school housed on the second floor of a downtown office building. That first year it had a faculty of seven and an enrollment of 91. Soon thereafter it moved to its own campus at Park Avenue and El Cajon Boulevard. It occupied these quarters until 1931 becoming meanwhile in 1931 a four-year teachers' college under the State Board of Education.

By 1931 it had grown beyond its facilities and moved to a new campus in what was then the far eastern outskirts of the city. What are now Arts and Sciences, the Women's Gymnasium, the Power Plant, and the central parts of the (old) library, Life Sciences, Speech, and Physical Sciences were the original buildings, erected in Spanish mission style with arches, an open-faced bell tower, covered walks, thick concrete walls, and red tile roofs. The motif of the architecture has been preserved in the new buildings so that the campus has unity.

In 1935, the college dropped "Teachers'" from its title and in 1960, it became part of the California State College system with a state-wide Board of Trustees and a chancellor. Because of its varied offerings both undergraduate and graduate, its professional schools, its accreditation, its fine library, and its distinguished faculty of over 1500 members, 68% of whom have the doctorate, many friends of San Diego State consider it of university caliber.

In recent years many new buildings of modern design have been added. Especially well equipped and spacious are Business Administration and Mathematics, Chemistry-Geology, Dramatic Arts, Engineering, Fine Arts, Home Economics, Industrial Arts, Life Sciences, the Malcolm A. Love Library, Music, Physics, Social Sciences, and gymnasiums for men and women. In addition, dining facilities, the student store, the student recreation center, and a large outdoor auditorium in the form of a Greek amphitheatre are all noteworthy. Two heated pools are available for year-round swimming, when school is in session.

The present site consists of 300 acres on the south mesa above Mission Valley, eleven miles from the Pacific Ocean. On crisp days, the forested Laguna ridge to the east and the high ground of Point Loma to the west are visible.

The natural sciences are housed in a \$25 million complex of fully equipped laboratory buildings on the northeast rim of the campus plateau. Astronomy is served by observatories on campus and in the nearby 6,000-foot-high Laguna Mountains. The university operates a computer center, seismology and weather stations, and two wind tunnels. Two biology field stations (one of 2500 acres) are maintained in forest and chaparral country. Specially designed laboratories also serve students in foreign languages, international relations, and public administration, as well as in the natural sciences.

Malcolm A. Love Library

A large new central library, named in honor of San Diego State's fourth president, was opened to the students and faculty scholars early in 1971. It provides ideal facilities for study and research. At the heart of the expanding campus, it is readily accessible from all directions. The five-floor building seats 3,700 readers and has an ultimate volume capacity of a million.

Its structure, contemporary in design, has a direct and simple impact on the viewer, free as it is of clutter. Because of the view through the large tinted glass windows enclosing the library on all sides, one is conscious that he is at the focus of the campus. The unusual arched outdoor pillars are repeated indoors, giving one a sense of continuity with nature. Generously carpeted and adorned with quality paneling, the library invites study and reflection.

The library's resources and services are noteworthy. Major services provided are: a central reference room, a specialized lower division library, a special collections room for rare books and archives, and areas for documents, educational resources, current periodicals, and microforms. It has a listening room for phonorecords.

Its collection is substantial. It has 700,000 volumes, including books, bound periodicals, and government documents. Additional resources include: 600,000 microcards, 200,000 microfiches, 20,000 reels of microfilm, 30,000 college catalogs, 50,000 curriculum materials, 22,000 scientific reports, 180,000 archival papers and manuscripts, and many other information media including phonorecords, sound tapes, prints, maps, pamphlets, and other graphic items.

The library receives 8,300 periodical and other serial titles excluding government documents. It is a depository for United States, California, Illinois, New York, and Texas government publications. It receives all United Nations and Organization of American States publications, and those of other national and international bodies.

Highly trained reference librarians assist students and faculty in their reading, study, and research. To aid the student in developing his powers in critical, independent thought through wide acquaintance with books, the library has an open shelf arrangement which gives direct access to nearly all books. Inexpensive copying machines are available throughout the building.

Several research centers on campus have collections not included in the library's holdings. Among them are: Public Administration and Urban Studies Laboratory, 50,000 items; Economics Research Center, 32,000 items; Geography and Geology Departments, 90,000 maps; International Relations Research Center, 14,000 items.

Accreditation

San Diego State is a member of the following educational associations:

American Association of Colleges for Teacher Education

American Association of Collegiate Schools of Business

American Dietetic Association

Council of Graduate Schools in the United States
Council on Social Work Education
Engineers' Council for Professional Development
National Association of Schools of Music
National League for Nursing
Western Association of Graduate Schools
Western Association of Schools and Colleges

Through membership in these associations, San Diego State is fully accredited. It is also accredited by the National Council for Accreditation of Teacher Education and by the California State Board of Education. It is on the approved list of the American Chemical Society and is approved by the Veterans Administration.

The university has four professional schools: business administration, education, engineering, and social work. See the descriptions of their programs in the section, Professional Schools. In addition, it provides high quality preparation for many other professions, among which might be mentioned: actor, artist, author, biologist, chemist, coach, dietician, geographer, geologist, journalist, linguist, mathematician, medical technologist, musician, nurse, philosopher, physicist, pilot, psychologist, public administrator, recreation leader, speech pathologist, stage designer, and zoologist. It offers the bachelor's degree in 64 areas, the master's degree in 48 areas, and three Ph.D.'s. Some of its recent noteworthy innovative programs are in Afro-American studies, Asian studies, ecology, Jewish studies, Mexican-American studies, religious studies, and women's studies.

Summer Sessions and Extension Courses

San Diego State conducts two summer sessions which offer credit applicable to graduation and residence requirements.

During the six-week Term I Summer Session, six units of academic credit may be earned; during the three-week Term II Summer Session, three units may be earned. The tuition for the summer sessions is based upon the cost per semester unit. Write to the Dean of Summer Sessions for information concerning course offerings, special workshops, and requirements for admission. The Summer Sessions Bulletin is available about the first of April and is mailed free of charge upon request.

In order more adequately to serve the educational needs of the community, San Diego State cooperates with off-campus organizations and groups in arranging extension classes in response to expressed needs when the enrollment is sufficiently large to finance the instruction. Offerings are made each semester in a number of departments including education, business administration, and the arts and sciences. Classes may be organized at various locations within San Diego, Riverside, and Imperial Counties. A minimum of 16 to 20 students is usually required in order to maintain a class. The usual class carries three units of credit and meets once a week, either in the late afternoon or evening. These

courses are listed in a special *Bulletin of Extension Courses* published each semester.

For limitations on extension credit, see the section of this catalog on Credit for Extension Courses. Refer to the index for page number. For information on organization of classes, current offerings, and eligibility for registration, communicate with the Extended Services Office.

Graduate Division

All graduate work leading to advanced degrees is under the jurisdiction of the Graduate Division and responsibility for all graduate curricula is delegated to a Graduate Council under the chairmanship of the Dean of Graduate Studies who also serves as the administrative officer of the Graduate Division.

Under the provisions of Section 41001 of the Administrative Code (see the section of this catalog on Admissions), the Graduate Council, through the Graduate Office, admits all students to authorized graduate degree curricula, determines their eligibility to continue in such curricula, and, in the cases of unsatisfactory performance, requires students to withdraw from all graduate curricula.

The Graduate Council is the appropriate college authority for the administration of all matters related to graduate degree curricula, requirements for which are specified in Section 40504 of the Administrative Code.

All master's degrees are conferred by the Trustees of the California State Colleges upon recommendation of the faculty of San Diego State. These degrees are designed to provide instruction for graduate students in the liberal arts and sciences, in applied fields, and in the professions, including the teaching profession.

Joint doctorates are awarded by the Board of Regents of the University of California and the Board of Trustees of the California State Colleges in the names of San Diego State and the cooperating campus of the University.

Honors Program

The Honors Program at San Diego State provides opportunities for superior students to use and develop their talents in a variety of ways, both all-college and departmental.

Those who have taken the Advanced Placement Examinations should refer to the section of the catalog so titled.

Prior to entrance, freshmen who have superior high school records may, on the basis of their college aptitude test scores, be invited to participate in a special advising program. Here attention is given to individual needs and interests. Students in this program are given Honors at Entrance. Later, as sophomores, such students are eligible for the Honors Colloquium (Humanities 66).

Some departments offer Honors sections of selected courses. Normally, admission is by invitation, but any student interested should consult the *Class Schedule* for the name of the faculty member in charge

and consult with him to establish eligibility. Currently honors sections are offered in English 5, 6; Mathematics 50, 51, 52; Physics 4A-4B-4C; Political Science 1, 2; and Psychology 1, 167A-167B. Chemistry 10A-10B is an honors course.

Upon completion of the sophomore year a student who has maintained a superior scholastic record may be eligible for admission to the upper division Honors Program of his major department. Specific requirements and details of these programs vary with the different departments. To apply, a student should consult his major adviser or the chairman of his major department.

The purpose of the San Diego State Honors Program is, within practicable limits, to meet the individual needs of the most capable students. Credit by examination, release from regular attendance, modification of curriculum requirements in the major and minor, and individual study are other opportunities available with the consent of the major adviser or other authorities. See also the section of this catalog titled "Graduation with Honors."

International Programs

The California State Colleges offer programs of study for a full academic year at a number of distinguished universities abroad. Students study and live under the same conditions as students at the cooperating universities, but remain enrolled in the California State Colleges, where they may apply their work toward degree requirements in accordance with college regulations. The programs, which are voluntary, cooperative and systemwide in nature, are designed as bona fide academic undertakings with clearly defined educational and professional objectives.

For 1970-71 the cooperating universities are: University of the Andes, Bogota, Colombia; University of Aix-Marseille, France; Free University of Berlin and University of Heidelberg, Germany; University of Ghana; The Hebrew University of Jerusalem and Tel Aviv University, Israel; University of Florence, Italy; Waseda University, Tokyo, Japan; University of Granada and University of Madrid, Spain; University of Stockholm and University of Uppsala, Sweden; National University, Taiwan.

Students are selected on the basis of academic, linguistic and personal qualifications. The criteria are:

- a) Upper division or graduate standing by the beginning of the academic year abroad;
- b) Academic achievement;
- c) Proficiency in the language of instruction;
- d) Faculty recommendations.

Programs in Ghana, Israel, Italy, Japan, Sweden, and Taiwan do not require previous linguistic preparation; applicants for all other programs must demonstrate adequate facility in the language of instruction at the host university.

Cost to the student covering round trip transportation from San Francisco, room and board for the academic year, and medical insurance ranges from \$2,000 to \$2,500, depending upon the specific country. Application should be made early in the fall.

Detailed information may be obtained from the Dean of the College of Arts and Letters, or from the Director, International Programs, The California State Colleges, 1600 Holloway Avenue, San Francisco, Ca 94132.

Research Bureaus

Asian Studies

Alvin D. Coox, Director

The Center for Asian Studies is an interdisciplinary organization in the College of Arts and Letters. Drawing upon faculty members from many areas, it performs such services as (1) securing and administering grants and other support for research and development in Asian Studies; (2) coordinating and publicizing the activities of faculty engaged in Asian-centered Studies; (3) developing and administering the Asian Studies Program and relevant curricula at the undergraduate and graduate level; (4) responding to campus and community requests for information and services; (5) fostering campus and community interest in Asian Studies.

Business and Economic Research

James W. Walker, Director

The Bureau of Business and Economic Research is an organized research activity serving the needs of the School of Business Administration. Operationally, it is a part of the School of Business Administration, with a director and staff. Fiscal matters are coordinated through the San Diego State Foundation.

The principal objectives of the bureau are to (1) conduct research in the areas of economics and business, with special reference to local and regional problems; (2) facilitate research in these areas by the faculty and students; (3) seek cooperative arrangements with outside individuals and organizations for conducting specific research projects; (4) analyze and interpret local and regional data; (5) publish the results of its investigations and aid the faculty in publication of their research.

Graduate students and faculty are encouraged to make use of bureau facilities. The bureau is a member of the Association of University Business and Economic Research.

Counselor Education

Emery J. Cummins, Director

The Center for the Study of Counselor Education is an interdisciplinary task force under the administrative jurisdiction of the Dean of

Education; fiscal matters are coordinated through the San Diego State Foundation. The Center is designed to draw together faculty members from relevant disciplines such as anthropology, economics, education, psychology, social welfare, social work, sociology, and the college counseling center for such purposes as (1) securing and administering grants and other support for research and development in counselor education and guidance and (2) conducting programs or rendering services related to counselor education and guidance through contractual agreements with public or private agencies or organizations.

Economic Education

Joseph McClintic, Director

The Center for Economic Education works with the public schools to promote better economic education. The functions include (1) research, (2) the development, evaluation, collection, and dissemination of appropriate materials, (3) in-service and pre-service instruction, and (4) service. The development of more effective strategies and the evaluation of teaching at all levels is involved.

Economics Research

Arthur E. Kartman, Coordinator

The Economics Research Center collects research materials, and publishes occasional monographs. The research facilities are available to advanced students for their research reports and to faculty members in economics, and in other fields, for the purpose of aiding research projects. The regular faculty seminars of the Economics Department, meetings of the local chapter of Omicron Delta Epsilon, and special economics conferences are held in this Center.

Educational Services and Research

David H. Ford, Coordinator

The Bureau of Education Services and Research operates within the School of Education. The objective of the bureau is to improve the quality of education through research by (1) assisting with research activities of individual faculty members who wish to make use of its services, (2) cooperating in community and service studies, (3) serving faculty graduate advisers as a resource in research design and statistical techniques, and (4) engaging in the dissemination of educational research information.

Labor Economics

Adam Gifford, Coordinator

The Institute of Labor Economics is an activity of the Economics Department with its administration under a director. The Institute, located with the Economics Research Center in SS-338, provides materials

and direction for research in labor problems, collective bargaining, labor legislation, and social security.

Latin American Studies

Philip F. Flemion, Director

The Center for Latin American Studies seeks to encourage teaching and research related to Latin America. It has primary responsibility for the administration of the Latin American undergraduate and graduate degrees and the Mexican Summer School programs. The center sponsors a Latin American Lecture Series which provides the campus with public lectures given by guest speakers and members of the San Diego State faculty who discuss a variety of Latin American topics. The center also assists in the development of the university library's Latin American holdings and has created a special collection of Latin American materials.

Marine Sciences

Glenn A. Flittner, Director

The Bureau of Marine Sciences has been established to facilitate interdisciplinary education and research activity in the Marine Sciences at San Diego State. The Bureau is administered by a director, and operated under the guidance of a Faculty Committee. Fiscal operation is coordinated through the San Diego State Foundation.

Paleobiology Council

Jason A. Lillegraven, Chairman

An interdisciplinary research and teaching agency to explore the fossil record.

Public and Urban Affairs

W. Richard Bigger, Director

The Institute of Public and Urban Affairs is an agency of San Diego State, organized to conduct research into community and governmental problems. It also sponsors institutes and conferences related to community and governmental activities. It is staffed by members of the faculty of San Diego State. Closely associated with the institute is the Public Administration Center with a specialized and growing collection of research materials. The institute engages in cooperative or joint research efforts with the various departments of instruction, institutes, and research centers of the university.

Public Economics

George Babilot, Director

The Center for Public Economics is a facility of the Department of Economics to encourage research by students and faculty in all phases of non-market economic decision-making, encompassing the following

areas: (1) the functioning of federal, state, and local fiscal systems, including the provision for and financing of public goods at each level; (2) the economic factors involved in environmental changes, in particular, their bearing on urban and local economic problems; (3) the economic dimensions of social decision-making. The center is designed to complement the curricular and degree programs in the Department of Economics and to be of service to related disciplines. It maintains research materials and facilities to assist research and publications in the area of public economics.

Research in Economic Development

Murugappa C. Madhavan, Director

The Center for Research in Economic Development is part of the Economics Department's effort to encourage research by students as part of their education and by the faculty. The Center, temporarily located in the Economics Research Center in SS-340, provides material and aid for research in problems related to less developed countries.

Social Research

Aubrey Wendling, Director

The Social Research Center is a facility of the Department of Sociology. It provides physical equipment and space for the planning and processing of sociological research in such areas of investigation as urban growth and development, demographic factors, and social surveys. Current plans include expansion of the center to include laboratories for experimental studies of social organization. The center is administered for the Department of Sociology by a director and an assistant director, whose duties include consulting assistance in the designing and execution of studies and in the preparation of proposals to funding agencies.

Survey Research

Oscar Kaplan, Director

The Center for Survey Research has been established to encourage nonprofit research in the sample survey field. The Center is prepared to undertake surveys requested by government or nongovernment organizations, and to do field work on a local, state, or national basis. Faculty members who wish to submit applications for off-campus support in survey research in the name of the Center may do so, upon approval of the project by the Center's Advisory Committee. The Center is administered by a Director.

Computer Center

The Computer Center is established to encourage and support the use of computers in all instructional, research and administrative activities of San Diego State. The Center is a cooperative venture by the San

Diego State Foundation, Aztec Shops and the College. The present equipment includes a medium size electronic digital computer—an IBM 360 Model 40 with 131,072 bytes of core storage, disks, tapes, a card reader, a card reader-punch, and a printer. The supervisor is the Disk Operating System which supports the Assembler, COBOL, FORTRAN, PL/I and RPG languages. Remote job entry terminals are located in two buildings on campus. These terminals, consisting of a card reader and printer, are connected to the main computer in the Computer Center via telephone lines. A smaller digital computer, an IBM 1130, supports the APL and FORTRAN languages and has a plotting capability. Additional facilities include all necessary peripheral equipment to permit computer operation in the fields of scientific computation and commercial data processing. Programming and data processing courses, and courses related to some specialized applications of computers are offered by several departments at San Diego State.

Research and Project Administration

Research in all academic areas is carried on at San Diego State, consistent with the Master Plan of Higher Education. San Diego State also actively engages in projects such as federal educational contracts and institutes (both on the campus and in foreign countries) as well as other projects related to community and national goals. All research and project activities at San Diego State are administered through the San Diego State Foundation. Under general policies set down by San Diego State administration, San Diego State has attempted successfully to maintain the balance, as envisioned in the Master Plan, between teaching and research, each supplementing the other.

Audio-Visual Center

The Center provides: (1) student operators to handle all types of A-V equipment for the instructional staff; (2) a comprehensive library of motion pictures, filmstrips, and tape recordings; (3) facilities for renting and borrowing instructional materials from most outside agencies; (4) a pool of audio-visual equipment for use by individual instructors. In addition, complete photographic, graphic and audio recording services are available for all instructional areas on campus. A professional staff of media specialists is available for consultation regarding purchases, production, and appropriate instructional utilization.

Admission and Registration

Requirements for admission to San Diego State, as to all the California State Colleges, are in accordance with Title 5, Chapter 5, Subchapter 2 of the California Administrative Code as amended by the Trustees. A prospective applicant who is unsure of his status under the requirements is encouraged to consult the counselor at his school or college, or the admissions officer at a state college.

The prospective student should first secure from the Dean of Admissions and Records and fill out completely the following official forms: application form, accompanied by a \$20 check or money order made out to San Diego State, a health history record, and a residency statement. A letter from an applicant indicating that he wishes to enroll does not suffice as an application. He must file the official forms. He may file only one application for any one term within the California State College system. The application should be obtained from, and filed with, the state college of his first choice. Second, third, and fourth choice campuses should be listed on the application.

Filing Periods

Depending on the semester or quarter in which he wishes to enroll, he should file his application within the periods as specified:

	<i>Initial Filing Period</i>	<i>Late Filing Period</i>
Summer Quarter 1972.....	Jan. 3-31, 1972.....	Feb. 1-April 28, 1972 (or earlier if quotas are filled)
Fall Semester 1972.....	Nov. 1-30, 1971.....	Dec. 1-June 30, 1972 (or earlier if quotas are filled)
Fall Quarter 1972.....	Nov. 1-30, 1971.....	Dec. 1-June 30, 1972 (or earlier if quotas are filled)
Winter Quarter 1973.....	June 1-30, 1972.....	July 3-Oct. 13, 1972 (or earlier if quotas are filled)
Spring Semester 1973.....	Aug. 1-31, 1972.....	Sept. 1-Nov. 30, 1972 (or earlier if quotas are filled)
Spring Quarter 1973.....	Aug. 1-31, 1971.....	Sept. 1, 1972-Jan. 31, 1973 (or earlier if quotas are filled)

San Diego State is on the semester system. Consult the catalog section, The California State Colleges, for information about the other state colleges.

All applications received during the initial filing period will receive equal consideration within the colleges' established enrollment categories and quotas, irrespective of the time and date they are received.

Applicants who can be accommodated within enrollment quotas will receive confirmation of space reservation. Although the space reservation is not a statement of admission, it is a commitment on the part of the college to admit a student once eligibility has been determined. When the student receives notice of the space reservation, he should initiate action to have transcripts of any college and high school work sent to the state college where space has been reserved. The college will

inform him of the number of copies of transcripts required, dates for submittal, and where they should be sent. The student should not have his transcripts sent until requested to do so by the state college where space has been reserved for him.

Applications of students who cannot be accommodated at their first choice college will automatically be forwarded to their second choice and, if they cannot be accommodated there, to their third choice, and so on. Special consideration may be given to qualified applicants who would be faced with an extreme hardship if not admitted. Such applicants should consult the Dean of Admissions and Records.

State colleges not filling enrollment categories during the initial filing period will continue to accept applications during the late period until quotas are filled. Enrollment priorities within the last period will be granted in chronological order of application receipt by the colleges.

It is unnecessary to apply in person. Indeed, application by mail saves the applicant time and is more convenient for the Admissions Office.

Filing of Records

File Official Transcripts. The applicant must file the following official transcripts with the Admissions Office:

- (1) Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution).
- (2) Transcripts from **EACH** college attended (including extension, correspondence, summer session, or evening courses). Graduate students must file transcripts *in duplicate* if they plan to enter the master's degree program.
- (3) Photostat or true copy of the military separation form DD-214 (or equivalent) if applicant has had active military service. (Not required of graduate students.)

An official transcript is one sent directly between schools. The applicant must request the school or college to send the transcript to the Admissions Office, San Diego State. All records or transcripts received by the college become the property of the college and *will not be released nor will copies be made.*

Completion of Required Tests

Admissions Tests

- (1) *College Aptitude Test.* The American College Test (ACT) or the Scholastic Aptitude Test (SAT) is required for matriculation of entering freshmen and transfer students with less than 60 units. Applicants should consult the high school counselor for dates and places where tests are given.

Transfer students with more than 60 units who have not taken either the ACT or the SAT are required to take a college aptitude test administered at this college. A test reservation card is filed with the application for admission. Refer to the calendar in the Class Schedule for dates of the test.

- (2) *Writing Competency Test*. This test may be taken before registration by all undergraduate students transferring to this college with 45 units or more of advanced standing. Passing this test or satisfactory completion of designated courses or remedial programs is a graduation requirement for all students.
- (3) *Test of English as a Foreign Language*. Applicants whose native language is not English must attain satisfactory scores on the Test of English as a Foreign Language (TOEFL). For further information see the section of this catalog on Admission of Foreign Students.

Teacher Education Tests

These tests are required of all candidates for teaching credentials. Refer to Admission to Teacher Education in the section of this catalog on the School of Education.

- (1) *Fundamentals Test*. This test is required of all candidates for the general elementary and kindergarten-primary credentials before admission to teacher education. May be taken before registration by students transferring to this college with 15 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Test Office, Administration Building, during the two weeks prior to the test date.
- (2) *Comprehensive College Test*. This test is required of all candidates for any of the secondary school credentials before admission to teacher education. May be taken before registration by students transferring to this college with 60 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Test Office, Administration Building one month prior to test date. Fee required.

Qualification Tests

Mathematics Placement Examinations. Required of students before enrollment in any of the following courses: Mathematics 3, 4, 12, 20, 21, 40, 50; and Economics 2. These examinations may be taken before registration. Reservations for the examinations are not required. Refer to the calendar in the Class Schedule for examination dates.

Graduate Aptitude Test. This test is required of all graduate students who intend to enroll in a master's degree program. May be taken before registration. Also given during the regular semester. Make reservations for this test at the Test Office, Administration Building. Refer to the Graduate Bulletin for full information and test dates.

Admission as a Freshman

An applicant who has had no college work will be considered for admission under one of the following provisions. Except as noted, submission of the results of either the Scholastic Aptitude Test or the American College Test is required.

California High School Graduates and Residents. An applicant who is a graduate of a California high school or a legal resident for tuition purposes must have a grade point average and either total score on the SAT or composite score on the ACT which provides an eligibility index placing him among the upper one-third of California high school graduates. The minimum eligibility index is 3072 for SAT, 741 for ACT. The SAT index is computed by multiplying the grade point average by 800 and adding it to the total SAT score. The ACT index is computed by multiplying the grade point average by 200 and adding it to 10 times the composite ACT score.

The grade point average is based upon all high school work completed in grades 10–12, excluding courses in physical education or military science.

The table below gives several examples of the test score needed with a given grade point average to be eligible for admission.

Grade Point Average	Score Needed	
	SAT	ACT
3.21 and above	Eligible with any score	
3.00	672	15
2.80	832	19
2.60	992	23
2.40	1152	27
2.20	1312	31
2.00	1472	35
1.99 and below	Not eligible	

The chart shows the test score needed with a given grade point average and the GPA needed with a given score.

G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score
(____) ¹			3.07	13	616	2.93	16	728
3.20	11	512	3.06	13	624	2.92	16	736
3.19	11	520	3.05	14	632	2.91	16	744
3.18	11	528	3.04	14	640	2.90	17	752
3.17	11	536	3.03	14	648	2.89	17	760
3.16	11	544	3.02	14	656	2.88	17	768
3.15	12	552	3.01	14	664	2.87	17	776
3.14	12	560	3.00	15	672	2.86	17	784
3.13	12	568	2.99	15	680	2.85	18	792
3.12	12	576	2.98	15	688	2.84	18	800
3.11	12	584	2.97	15	696	2.83	18	808
3.10	13	592	2.96	15	704	2.82	18	816
3.09	13	600	2.95	16	712	2.81	18	824
3.08	13	608	2.94	16	720	2.80	19	832

G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score	G.P.A.	A.C.T. Score	S.A.T. Score
2.79	19	840	2.52	24	1056	2.25	30	1272
2.78	19	848	2.51	24	1064	2.24	30	1280
2.77	19	856	2.50	25	1072	2.23	30	1288
2.76	19	864	2.49	25	1080	2.22	30	1296
2.75	20	872	2.48	25	1088	2.21	30	1304
2.74	20	880	2.47	25	1096	2.20	31	1312
2.73	20	888	2.46	25	1104	2.19	31	1320
2.72	20	896	2.45	26	1112	2.18	31	1328
2.71	20	904	2.44	26	1120	2.17	31	1336
2.70	21	912	2.43	26	1128	2.16	31	1344
2.69	21	920	2.42	26	1136	2.15	32	1352
2.68	21	928	2.41	26	1144	2.14	32	1360
2.67	21	936	2.40	27	1152	2.13	32	1368
2.66	21	944	2.39	27	1160	2.12	32	1376
2.65	22	952	2.38	27	1168	2.11	32	1384
2.64	22	960	2.37	27	1176	2.10	33	1392
2.63	22	968	2.36	27	1184	2.09	33	1400
2.62	22	976	2.35	28	1192	2.08	33	1408
2.61	22	984	2.34	28	1200	2.07	33	1416
2.60	23	992	2.33	28	1208	2.06	33	1424
2.59	23	1000	2.32	28	1216	2.05	34	1432
2.58	23	1008	2.31	28	1224	2.04	34	1440
2.57	23	1016	2.30	29	1232	2.03	34	1448
2.56	23	1024	2.29	29	1240	2.02	34	1456
2.55	24	1032	2.28	29	1248	2.01	34	1464
2.54	24	1040	2.27	29	1256	2.00	35	1472
2.53	24	1048	2.26	29	1264	(____) ²		

¹ Students earning grade point averages above 3.20 are eligible for admission.

² Students earning grade point averages below 2.0 are not eligible for admission.

Non-Residents Graduating from High Schools in Other States or Possessions. An applicant who is a non-resident for tuition purposes and who is a graduate of a high school in another state or a U.S. possession must have an eligibility index which would place him among the upper one-sixth of California high school graduates. The minimum required eligibility index is SAT 3402 or ACT 826 and is calculated as in the previous section.

Graduates of High Schools in a Foreign Country. An applicant who is a graduate of a foreign high school must have preparation equivalent to that required of eligible California high school graduates. The college will carefully review the previous record of all such applicants and only those with promise of academic success equivalent to that of eligible California high school graduates will be admitted. Such applicants are not required to take either the SAT or the ACT except when specifically requested to do so.

Non-High School Graduates. An applicant who is over 21 years of age, but has not graduated from high school will be considered for admission only when his preparation in all other ways is such that the

college believes his promise of academic success is equivalent to that of eligible California high school graduates.

High School Students. A student still enrolled in high school will be considered for enrollment in certain special programs if he is recommended by his principal and his preparation is equivalent to that required of eligible California high school graduates. Such admission is only for a given program and does not constitute the right to continued enrollment.

Recommended Preparation. Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at San Diego State. While no specific course pattern is required, to prepare himself properly for a full program of university studies, the applicant is urged to include the following subjects in his high school career: college preparatory English (four years), foreign language (three or four years in the same language), college preparatory mathematics (algebra and geometry for all, two additional years for prospective science majors), college preparatory science with laboratory (one year of a life science, one year of chemistry, and a year of physics), a year of United States history, a year of senior civics, and a third year in the general area of social studies. In addition, the student should take classes in speech, music, art, and other subjects contributing to a general academic background. Prospective science majors should acquire skill in the use of the slide rule and in mechanical drawing. All students would find the ability to type useful in college.

Admission of Undergraduate Transfers

Applicants for admission to San Diego State as undergraduate transfer students must qualify under one of the provisions specified below.

Applicants with 60 or more semester units. An applicant who has completed 60 or more semester units or the equivalent will be admitted if he has achieved a grade point average of 2.0 (C) on all college work attempted and was in good standing at the last college attended. Non-resident applicants must have earned a grade point average of 2.4 (C+) or more.

Applicants with fewer than 60 semester units. An applicant who has completed fewer than 60 semester units or the equivalent may be admitted if he meets the above requirements and he meets requirements currently in effect for first-time freshmen. If he has been in full-time continuous enrollment at a college since his graduation from high school, he is eligible if he meets the requirements in effect for first-time freshmen at the time of his high school graduation. He too must submit SAT or ACT scores.

Other Applicants

An applicant not admissible under one of the above provisions should enroll in a community college, or other appropriate institution. Only under the most unusual circumstances will such applicants be permitted to enroll in the college. Permission is granted only by special action.

San Diego State offers a special program designed to expand educational opportunity for capable young people who, for a variety of reasons, have not previously had the opportunity. For detailed information regarding admission to this program, refer to the section of this catalog on the Educational Opportunities Program.

Graduate Students

All students holding a baccalaureate degree who desire to enroll at San Diego State for post graduate study must apply for admission to San Diego State through the Office of Admissions. In making the application, they must observe the procedures outlined above. On acceptance into the university, they will be admitted with unclassified graduate standing if they hold an acceptable bachelor's degree from an accredited institution or with undergraduate standing if they do not hold such a degree. Upon the satisfactory completion of a minimum of twelve units of undergraduate courses as approved by the Dean of Admissions and Records with a grade point average of not less than 2.50, the Dean of Admissions and Records may change the undergraduate standing to unclassified graduate standing.

For admission as an unclassified graduate student, an applicant must hold an acceptable baccalaureate degree from an accredited institution, or must have completed equivalent academic preparation, and must satisfactorily meet the professional, scholastic, personal, and other standards for graduate study, including qualifying examinations, as the appropriate university authorities may prescribe.

A student who has been admitted as an unclassified graduate student may, on application, be admitted as a classified graduate student to an authorized graduate degree curriculum if he satisfactorily meets the professional, personal, scholastic, and other standards for admission to the graduate degree curriculum, including qualifying examinations, as the appropriate university authorities may prescribe.

Foreign Students

Applicants for admission as either graduates or undergraduates whose education has been in a foreign country should file an application for admission, official certificates and detailed transcripts of record from each secondary school and collegiate institution attended several months in advance of the opening of the semester in which the applicant expects to attend. If certificates and transcripts are not in English, they should be accompanied by certified English translations. Credentials will be evaluated in accordance with the general regulations governing admission to San Diego State.

An applicant whose education has been in a language other than English must take the Test of English as a Foreign Language (TOEFL). This test is administered in most foreign countries and test scores must be received by the college before admission to the college can be granted. Information as to the time and place at which this test is given may be obtained by writing to: Educational Testing Service (TOEFL), Princeton, New Jersey, 08540, U.S.A. Upon arrival at San Diego State, a further test of English will be given for the purpose of placing students in an English language program commensurate with their linguistic ability in English, and for use by advisers to assist students in planning an appropriate course of study. All students, undergraduates and graduate, are required to take one or more of the following courses, depending upon performance on the placement test: English 1X, English 1Y, English 5. These English courses must be taken in consecutive semesters, with first required course being taken during the student's first semester at San Diego State. Foreign students transferring from another U.S. college may be required to take an English placement test.

Arrangements for housing should be completed before the student's arrival on the campus. Detailed information regarding housing may be obtained from the Director of Housing, San Diego State. Scholarship aid for entering students is limited; no scholarships are specifically reserved for students from another country. Further information regarding scholarships will be found elsewhere in this catalog.

Upon arrival at San Diego State the student should obtain an appointment as early as possible with the Coordinator of Foreign Student Admissions.

Limitation of Enrollment

Admission to a state college must be restricted in relation to the number of students for whom an adequate college education can be provided by the staff and facilities available. The Trustees have authority on the matter.

Registration

Students who receive notice that they are eligible for admission to San Diego State must complete additional requirements for registration, such as clearance of residency status, payment of fees, and the keeping of other designated appointments as outlined in the *Class Schedule*, a publication issued prior to the beginning of each semester and sold at the campus bookstore.

Residency Status Clearance

The laws of the State of California require this college to determine the residency status of each student enrolling prior to the payment of fees and tuition (if required).

Tuition is free to every student who has been a legal resident of the State of California for a period of one year immediately preceding the residence determination date announced by the Board of Trustees. Every student who has not been a legal resident of the State for said period is classified as a nonresident and is subject to payment of a nonresident tuition fee in addition to fees paid by California residents. (Exemption from payment of the nonresident tuition fee may be granted to an unmarried minor whose parent is in the active military service of the United States and is stationed in California on the residence determination date of the semester during which the minor proposes to enroll.)

Residence is acquired through the combination of physical presence in California together with the intention of remaining in the state. As a general rule, the residence of an unmarried minor student is determined by the residence of his father. The residence classification of each student is determined in accordance with the California Government Code and the California Education Code.

The attention of the prospective alien student is directed to the fact that he is a nonresident unless, in addition to the general residence requirements for tuition purposes, he has been admitted to the United States for permanent residence in accordance with all applicable laws of the United States. The attention of the prospective student who has not attained the age of twenty-two and whose parents are not California residents and the attention of the Veteran who was not a resident of California at the time of his entrance into the Armed Forces is directed to the fact that presence in California for more than one year does not, of itself, entitle the student to classification as a resident.

The residency classification received by any student is subject to review and change. Every student who is classified as a resident but who becomes a nonresident of California is held responsible for notifying the Residency Office at once. Application for change of classification with respect to a previous semester will not be received under any circumstances.

A person incorrectly classified as a resident student is subject to reclassification as a nonresident if the incorrect classification resulted from concealed facts or untruthful statements made by him. The student then shall be required to pay all tuition fees which would have been charged to him as a nonresident student.

Information concerning the waiver of the nonresident tuition fee for graduate students is available from the office of the Dean of Graduate Studies.

Registration Priority and Advising

Each student is assigned a priority number which determines the order in which he registers and pays fees. The schedule for registration and payment of fees is published in the *Class Schedule*. Priority numbers appear on the Notice of Admission for entering students, and on the permanent identification cards for students continuing their uninterrupted enrollment in the regular semesters.

Provision is made at the time of registration for each new student to obtain assistance from a faculty adviser in arranging a program. The faculty adviser is assigned at the time of registration. Each student should thereafter schedule a conference with his adviser at least once during each semester.

Fees and Financial Aid

At the time of registration every student must pay a graduated fee varying with the number of units for which he registers. (Auditors pay the same fees as students taking courses for credit.) The fee per semester is as follows:

<i>Units</i>	<i>Fees</i>
0-3.9	\$58.50
4-7.9	63.50
8-11.9	68.50
12 or more	78.50

This fee covers materials and services and includes a student activity fee of \$9.50, a student union fee of \$7.00, and a facilities fee of \$3.00. For fee-paying purposes, zero unit courses count as one unit.

Other fees are as follows:

Administrative			
lateness	\$2	Late registration	\$5
Application for		Lost library book	cost
admission	20	Organ practice	10
Bad check	2	ROTC deposit	10
Change of Program	1	Transcript	1
Damaged equipment	cost		

For a parking permit, the fee is \$13 for the first car, \$1 for each additional car used for a car pool, and \$3.25 for a two-wheeled motor vehicle.

The miscellaneous fees are payable when the service is rendered. The first transcript of record is free; the fee stated applies only to subsequent copies.

In addition to the fees already specified, nonresidents must pay tuition of \$37 per unit per semester, to a maximum of \$555 per semester. Foreign visa students enrolling for the first time spring 1971 and thereafter pay this same tuition, but foreign visa students who were enrolled prior to then pay \$20 per unit per semester to a maximum of \$300 per semester.

For fees for the summer sessions and for extension courses, consult the respective bulletins.

All fees and tuition charges are subject to change by the Trustees without prior notice.

Refunds

If a student withdraws from the university by the beginning of the third week of classes, he may receive a partial refund of the fee for materials and services. Tuition is refundable on a sliding scale, depending on the time of withdrawal. The student begins the process by filling out a withdrawal card at the Registrar's Office.

Some portion of the parking fee can be refunded on a sliding scale up to three months after classes have begun. The student applies for the refund at the security office in the Administration Building, bringing with him his receipt and the remnants of his parking sticker.

Cost of Living

Each student should plan his budget based on individual needs. The wide range of financial resources of students in a university as large as ours makes it difficult to give specific information on costs. At San Diego State it is possible to live simply and participate moderately in campus life on a modest budget. The following table may serve as a guide.

Estimated Expenses for the Academic Year

	<i>Living on Campus</i>	<i>Commuting</i>
Materials, service, student activity, student union fee, facilities fee	\$157	\$157
Books and supplies	180	180
Personal	450	360
Room, board, health	1250	---
Board, incidentals	---	400
Transportation, parking	---	350
Total	\$2037	\$1627

In addition, foreign students and out-of-state students pay an annual tuition of \$1110. Typical expenses for married students without children average \$3,400 for a nine-month period.

Financial Aid

San Diego State makes every effort to see that students who wish to attend are not prevented from doing so because of inadequate resources. Funds available to the college, however, are not unlimited and applications are considered on the basis of greatest financial need. Financial aid in the form of loans, grants, and part-time employment on or off the campus is made available to qualified applicants. In the majority of cases, a student will be offered a package financial aid plan which may include one or more of the types of aid.

Some loan programs—those for prospective teachers, nurses, and law enforcement agents—provide for partial cancellation of the indebtedness if after graduation the recipient is employed full time in the designated area. Some interest-free loans of modest size are available for emergencies. Some outright grants can be made to students from low-income families who would not, but for such a grant, be financially able to pursue a course of higher education. They are renewable as long as the need remains. Some grants are also available to full-time employees of certain law-enforcement agencies. Aliens, however, are eligible only for emergency loans.

Applying for Aid

All these financial aid programs, as well as others not described here, are administered by the Financial Aid Office, Administration Building Room 222. Interested persons should ask for the Financial Aid brochure. Counselors are available for guidance as to the most appropriate aid program for the individual.

Applicants twenty-five years of age or under must complete a Parents' Confidential Statement so that financial need may be determined. Application forms are available the first week in January and must be submitted by April 15 to be considered for financial aid for the following academic year.

Scholarships

Most donors prefer to provide scholarships to students who have been in attendance at least one semester. Hence, only a few music, athletic, and general scholarships are available to incoming students. Some entering freshmen have been awarded scholarships through their high school scholarships committees. Nursing student scholarships, providing up to \$1,500 per year to full-time students and based on financial need, are available to entering freshmen as well as to transfer students and continuing students. Scholarships for graduate students are listed and described in the Graduate Bulletin. Students who wish to study elsewhere may get information about Fulbright fellowships from Dr. Kurt Friedrich, Professor of Education, and about Danforth, Kent, Rhodes, and Woodrow Wilson fellowships from Mrs. Margery Warner, Dean of Activities.

Application deadlines vary according to the type of scholarship sought. An interested student or prospective student should ask for a brochure from the Scholarships Office, 5868 Hardy Avenue.

In addition to the scholarships granted to students directly by organizations and individuals, the following scholarships are awarded through the Scholarships Committee.

Ackley Scholarship	Kappa Pi
Alpha Epsilon-Brenda Beitner	KOGO-TV
Alvin Morrison Memorial	La Mesa Dialogue for Action
American Business Women's Assoc.	Las Meninas Junior Women's Club
American Society of Military Comptrollers	Linkletter, Art
American Yugoslav Woman's Club	Lodge, Catherine Yuhon
Amsden Memorial	National Council of Jewish Women
Baranofsky, Dorothy, Memorial	Pacific Beach Jr. Women's Club
Biehl, Martha S. Memorial	Perry, Fay Van Ness
Bowman, Mrs. Elton Memorial	Pfaff, Paul Memorial
Brown, Dr. Leslie P.	Phi Alpha Theta
Burgener, Clair W.	Phi Epsilon Phi
California Congress of Parents & Teachers	Pi Lambda Theta
California Society CPA's	Post, Dr. Lauren C.
California State Fireman's Assoc.	San Diego City Schools Guidance
Cap & Gown	San Diego Gas & Electric
Cooper, Daniel William	San Diego State College Alumni
Copley Press	San Diego Women's Club—Home and Garden
Country Friends	Senn, Percie Belle
Del Cerro Women's Club	Shields, Robert Patterson, Foundation
Delta Kappa Gamma	Sigma Alpha-Gamma Upsilon Chapter
Dorado Foundation	Sigma Alpha Iota Alumnae
Downtown Optimist Club	Silvergate Lions Club
Ellis, George William, Memorial	Silverman, Anna & David
Executive Secretaries, Inc.	Society of California Accountants
Faculty Dames	Society of Manufacturing Engineers
Fleet Foundation	Solar
Fontaine, Amelie Memorial	Stott, Dorothy C. & Kenneth W.
General Dynamics	Thompson, Terry Lynn, Memorial
Jones, Sybil Eliza	Trott, Wilnia Tyler
Junior Charity League	Whitney, Guilford H., Foundation
	Williams, DeWitt Bisbee

Student Services

Staff

Activities: Judy Haller, Stephen Ironhill, Bruce Meador, Dorothy Simpson, Gary Solbue

Career planning and placement, and financial aid: Judy Gottlieb Gumbiner, Richard B. Haines, E. Biddle Heg, J. Franklin Jonasson, James Kelly, Nancy Leonard, Jesse Martinez, James R. Murphy, Nancy J. Olsson, Susan E. Ramsey, Nancee B. Williamson

Counseling and testing: Samuel Gange, Jack Graham, David Hostetler, Mary Hubbard, Mike Irwin, Richard Morril, David Nesvig, Donald Neuman, Gwen Onstad, Judy Osgood, Earl Peisner, Herman Roemmich, Steven Sherr, Marguerite Strand

Health service: Mary Bradford, M.D., James Crawford, M.D., James Firoved, M.D., John J. Killion, M.D., Patricia Peterson, M.D., Robert Vinton, M.D., Betty Zak, M.D.; Gertrude Anderson, R.N., Elizabeth Bandt, R.N., Verna Brooks, R.N., Betty Chohan, R.N., Ethel Erickson, R.N., Virginia LeBlanc, R.N., Juanita Lichtenfeld, R.N., Dorothy O'Carroll, R.N., Joan Simcox, R.N., Arlene Thompson, R.N., Frances Woodiwiss, R.N.

Counseling and Testing

These services are performed in the Student Counseling Office and in the Test Office in the Administration Building. The university makes them available to help students gain the greatest benefit from their college experience. Mature and well trained counselors are available for help in the solution of problems of a personal, social, or occupational nature. In addition, the program of student advising is coordinated in the Counseling Office. Students wishing to set up a special major or who have questions about the undeclared or special major can receive guidance in the Counseling Office.

Health Service

As a part of the program of student personnel services the college provides health services for the protection and maintenance of student health. These services are administered under the supervision of a medical director-administrator. A full-time physician staff is available to the students when school is in regular session for consultation, treatment of minor physical conditions, emergencies and counsel as to follow-up procedures. Full-time nurses and technologists are also on duty when school is in regular session.

As a part of the admissions procedure a health history is required of all students. On the reverse side of the health history is a physical examination form to be completed as a condition to matriculation in accordance with Title 5, California State Colleges, Paragraph 41200. Careful attention is given to students undergoing private remedial

treatment, and those for whom a modified study load or limited participation in physical education activities seems advisable.

A student health insurance program sponsored by the Associated Students is currently in effect. This insurance, which covers hospitalization and specified medical and surgical services, may be purchased by the semester or the year through Aztec Shops, with enrollment open the first thirty days of each semester. Refund will be made to students graduating or dropping out of school on a prorated basis.

Career Planning and Placement Center

The college provides a centralized placement service in cooperation with the various departments of the college. Undergraduate students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Liaison is maintained with the Personnel Services Center on matters relating to senior vocational counseling. Staff members maintain constant liaison with schools, businesses, and industries. Early in his university career, the student should seek out a counselor at the center appropriate to his academic and vocational goals, and establish a Placement File. Special counselors to serve Chicano and Black students have recently been added to the center staff. The center is located in the College Annex, 5870 Hardy Avenue.

Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week. Students are strongly advised to take this into consideration before accepting any part-time job.

When registering for his last semester, the student should fill out an Early Match System data card. With the information he thus provides, the center staff can better assist him in seeking out rewarding and challenging full-time employment.

Vocational Rehabilitation Services

A student who has a physical or emotional disability which handicaps him vocationally may be eligible for the services of the State Department of Rehabilitation. These services include vocational counseling and guidance, training, and job placement. He may qualify also for financial assistance for educational and medical needs and to meet living expenses.

For further information, students should apply to the department at its district office, 1350 Front Street, San Diego, or call 232-4361.

Study Skills Center

Standard English, free from flagrant errors in grammar and spelling, is required on written assignments throughout the college; moreover, passing of the Writing Competency Test or satisfactory completion of designated courses or remedial programs is a requirement for graduation.

To help students attain a reasonable degree of proficiency, the English Department offers several courses in composition, beginning with the freshman year. In addition, the department maintains a Study Skills Center, offering a semitutorial service to those wishing to improve writing or reading ability or to get help with study problems or writing projects, either remedial or advanced. The service is open to all students at any level of college work. If interested, enroll in English R or W, or simply come to the center without registering.

Audiology Diagnostic Center

The Audiology Diagnostic Center is a facility of the Speech Pathology and Audiology Department with its administration under a director. The center is located on the lower floor of the Education Building, adjacent to Health Services. The principal objectives of the center are: 1) to provide complete diagnostic information regarding the hearing loss for faculty, students, and staff free of charge; 2) to provide the same service to the community for a minimal fee administered through the College Foundation; 3) to provide hearing assessment of all freshmen and transfer students as part of their health examination; and, 4) to foster research in the area of hearing function and pathology. This center operates throughout the school year and in Summer Session I.

Speech and Hearing Clinic

A speech and hearing clinic in which college students are trained in the application of speech and hearing pathology techniques, speech, lipreading and auditory training and language development for the hard of hearing and deaf, is held throughout the academic school year and in Summer Session I. The clinic admits those with speech and hearing problems, ages three to adult. Because of limitations in staff, not all who apply can be admitted. A minimal fee is charged for diagnostic evaluation and therapy for outpatients but not for students enrolled at San Diego State.

Clinical Training Center

The Clinical Training Center prepares college students to identify and diagnose children's and young adults' physiological and psychological difficulties, to teach and give remediation, and to test and counsel. Students from the departments of Education, Psychology, Social Work and Speech Pathology and Audiology receive a variety of carefully planned experiences, including an opportunity to work with children and youth under supervision on a one to one ratio or in very small groups. In addition, they take part in frequent staff meetings which utilize the interdisciplinary approach toward solution of children's problems. Meetings with parents of the children with whom they work is a regular function of the training program.

While the primary purpose of the Center is to train teachers and clinicians, a community service is offered to those who have problems with school achievement, speech, hearing, educational and vocational

planning, and school adjustment. Referrals are ordinarily made by schools, other agencies, or individuals. Parents, for example, may make a referral either directly to the Center or through their child's school. In general, preference would be given to the child who might profit best by specialized help and who meets the needs of training college students. There are specific criteria of selection of children for each strand of the total program.

Student Activities

A rich field of extracurricular activities is available to San Diego State students. The *Student Handbook*, available at the time of registration, gives information concerning the nature and scope of these opportunities. The Dean of Activities, Mrs. Margery Warmer, and her staff are available to students desiring advice and assistance in planning appropriate participation.

A multitude of opportunities are offered through musical and dramatic performing groups, programs of intercollegiate athletics, newspaper, magazine, radio, television, film, and theater productions. Among the approximately 200 student organizations offering membership are national service, honorary and professional fraternities, recreational, religious, special interest and departmental organizations, national social fraternities, and national social sororities.

There are twelve national sororities at San Diego State. Housing accommodations for approximately 300 women are available in sorority houses. Only one formal rush period is held during an academic year, while informal rush continues throughout the entire year. Formal Fall Rush will be held during the second week of September. Registration with the Panhellenic Office early in August is encouraged. Although certification of admission to the university is not a prerequisite for registering, it is required in order to participate in the program.

Aztec Center

San Diego State was the first of the California State Colleges to build and operate a permanent college center. The Aztec Center story started in the mid-1930's when students and faculty began accumulating funds for construction. In 1956, the Associated Students Council set aside a permanent portion of the Activities Fee for the building fund. Students voted to assess themselves a mandatory fee for the further development of the project in 1963. Two years later the U.S. Department of Housing and Urban Development extended a 40-year loan of \$2.9 million to enable construction to begin. The student union fee will be used to retire this indebtedness; no public tax money is involved. The furnishings and equipment were paid for with student funds and contributions from Aztec Shops, Ltd. From inception to the finalities of interior furnishings, students and faculty have shared alike in all phases of its planning and development. Financed by a student union fee, it is a non-profit, self-sustaining, self-liquidating, non-tax supported, student-financed operation.

Use of the center is the privilege of San Diego State students, faculty, staff, alumni, and their guests. It provides a pleasant background for many cultural, social, and recreational activities. Its name reflects its unifying nature: a dynamic, enriching focal point for the social life of members of the campus community.

The 110,000 square foot structure houses a portion of the activities program and includes several lounges, conference rooms, bowling lanes, and space for billiards, table tennis, an information booth, a U.S. Post Office branch, ticket office, lost and found, barber shop, student government center, a snack bar (Monty's Den), and a large hall (Montezuma Hall) for lectures, movies, and concerts.

Alumni Association

The purpose of the association is to promote interest in the university on the part of alumni, students, faculty, and the general community. Cooperating with student and faculty committees, it participates in Founders' Day, Commencement, and other campus events. It publishes a monthly Alumni News and twice a year *El Campanario* to distribute news about the university to its members. Membership in the association is open to any former student who was in regular attendance for at least a semester, as well as to past and present members of the faculty. Alumni House, at 5721 Lindo Paseo, is attractively furnished and has a garden area for outdoor events. Alumni are invited to use its facilities.

Residence Halls

Accommodations for 1668 single students are available in six residence halls on campus. Each of the buildings is fireproof and air-conditioned throughout. Five halls (two for men and three for women) accommodate 209 students each, with sleeping and study facilities on a two-students per room basis. The sixth residence, which is co-ed, accommodates 623 students with 221 spaces for men. Adequate provision for study hours will be made, as well as an opportunity for participation in campus activities. Student government in each residence, working through the Associated Students of San Diego State, sets standards for basic behavior in these residence halls. Each of the smaller residence halls is staffed by one Head Resident and five Assistants, with two Head Residents and appropriate staff in the larger hall.

Currently, the cost for room, health and accident insurance, and linens is approximately \$250 to \$345 per semester. Food service (19 meals per week) is available in The Commons on an optional basis.

To apply for housing, the student should ask for an application and deposit \$98 with the cashier in the Campus Laboratory School. A student may apply as early as a year in advance. Applications are taken in order of date received. Though consideration will be given to a student's request for an individual hall and roommate, he cannot be guaranteed a specific room.

No application can be honored if the student is not accepted for admission into San Diego State by August 18 (January 24, spring semester). Clearing residency is not the same as being fully admitted to the university. Nor does receipt of a housing contract mean that the university is committed to admitting the student. The deposit will be refunded if a student, after having submitted his housing application, is denied admission to the university.

During the Summer Sessions, rooms are available on a receipt-of-check date priority. A \$20 refundable security deposit should accompany a request for reservation.

Adjacent to the campus is a nine-story privately owned and operated coeducational residence hall, approved for SDS students. Room and board are available for over 500 students. For information apply directly to El Conquistador, 5505 Montezuma Road, San Diego.

Information on other off-campus housing may be obtained from the Director of Housing, 5860 Hardy Avenue.

Transportation and Parking

Bus line transportation to the college, connecting with all areas of the metropolitan area, is available daily, except Sundays and holidays. Route S operates north-south on College Avenue, between the campus and the College Grove Shopping Center at Ryan Road. Transfer points for connecting east-west bus lines are at El Cajon Boulevard with Route E, at University Avenue with Route 7, and at Streamview Drive with Route 5.

On-campus parking areas are provided for students, faculty and staff. A visitor information booth is located at the entrance to the campus on Campanile Drive.

Educational Opportunities Program

This program is designed to assist capable young people from minority or low income groups who wish to acquire a college education but are handicapped by financial or academic factors. In cooperation with various EOP offices, high schools, and community organizations, the program recruits students, helps them enroll, and advises them concerning scholastic and financial assistance. Financial aid is disbursed through the Financial Aid office according to established individual need.

Through the EOP Supportive Services, counselors are made available for help with personal problems so that each student may have the opportunity to reach his fullest potential.

Veterans

The university maintains an office to serve veterans who are pursuing their higher education at San Diego State. The office staff provide information, help in the establishment of benefits, and seek to facilitate registration. The service is under the administration of the Dean of Admissions and Records.

General Regulations

Students are held individually responsible for the information contained in the catalog. Failure to read and comply with college regulations will not exempt a student from whatever penalties he may incur.

Grades

At the end of each semester or summer session in which a student is enrolled, a report of courses taken, showing units and grades earned, is sent to the student. Grades and grade points used in reporting are as follows: Grade of A (outstanding achievement), 4 points; B (commendable), 3 points; C (satisfactory), 2 points; D (passing), 1 point; F (failure), 0 points; Inc (incomplete), counted as units attempted, 0 points; W (withdrawal), not counted in grade point average; WF (withdrawal failing), counted as failing in the grade point average; Cr (credit), signifying units earned, but not counted in the grade point average.

Incomplete Grade

An incomplete grade is counted as units attempted with no grade points and remains on the student's record unless made up. Except for Course 299, Thesis, one calendar year beyond the end of the term when an incomplete is assigned will be allowed for makeup of the incomplete. The student must arrange with the instructor who gave the incomplete for removal of the course deficiencies, upon completion of which a final grade will be assigned. *An incomplete cannot be removed by repeating the course.*

If a student does not make up the incomplete, but instead re-enrolls in the course for credit, he has repeated the course for which he will receive the credit and grade points earned, subject to the regulations for repeating courses. The incomplete will remain on the student's permanent record as units attempted with no grade points earned and cannot thereafter be made up through removal of course deficiencies.

A candidate for graduation with the baccalaureate degree whose record carries an incomplete which was received within the last calendar year will be graduated without the opportunity of making up the incomplete if he is otherwise eligible for graduation; however, the incomplete cannot be made up after the degree has been granted. If the student does not wish to be graduated with the incomplete on his record, he must officially withdraw as a candidate for graduation.

Grade Point Average

Grade points are assigned to each grade except Credit. They are: A, 4; B, 3; C, 2; D, 1; F, I, and WF (Withdrawal Failing), 0. If at the end of a semester, a student has received B's in two three-unit classes and

C's in two five-unit classes, he has earned 18 plus 20 grade points or a total of 38.

To compute the grade point average, one divides the total number of grade points earned by the number of units attempted. Thus, in the example cited, the student's GPA is 38 divided by 16 or 2.375. The minimum GPA for a bachelor's degree or recommendation for transfer to another college is 2.0 (C); in other words the student must have earned at least twice as many grade points as units attempted.

Auditing

A student who does not wish to take a course for credit may, with the consent of the instructor, enroll as an auditor. An auditor must meet all admissions requirements and pay the same fees required of students taking the course for credit. No change from regular registration to audit, nor from audit to regular registration will be permitted during the semester. An auditor is not held for examinations and does not receive credit or a final grade in the course.

Repeated Course

A student may repeat a course in which he has received a grade of D or F, but may not receive credit for the course more than once. A repeated course is counted as units attempted and is credited with the grade points earned, the effect being an averaging of the grades. If a student repeats a course in which he has received a grade higher than D, the repeated course will not be counted as units attempted nor will grade points be counted in the student's record.

Final Examinations and Credit

No final examination shall be given to individual students before the regular time. Any student who finds it impossible to take a final examination on the date scheduled must make arrangements with the instructor to have an incomplete grade reported and must take the deferred final examination within the time allowed for making up incomplete grades.

Credit for Upper Division Courses

Normally, only juniors, seniors, and graduate students enroll in upper division courses (numbered 100 and above). However, a freshman or sophomore who demonstrates to the satisfaction of the appropriate department that he is qualified may enroll in an upper division course if the instructor consents. He may get upper division credit for it if in addition he secures the approval of the chairman of the department and of the dean of the school or college concerned, and informs the Dean of Admissions and Records of their approval. He begins the process

by obtaining a Request for Adjustment of Academic Requirements (a "waiver") form from the Evaluations Office.

Community College Credit

A maximum of 70 semester units earned in a community college may be applied toward the degree, with the following limitations: (a) No upper division credit may be allowed for courses taken in a community college; (b) no credit may be allowed for professional courses in education taken in a community college, other than an introduction to education course.

Concurrent Master's Degree Credit

A senior who is within seven units of completing requirements for the bachelor's degree and whose overall grade point average is 3.0 or above may petition the Graduate Council to take approved 100-numbered courses for concurrent master's degree credit with the remaining requirements for the bachelor's degree. Enrollment in 200-numbered courses is not permitted. The bachelor's degree must be completed at the end of the semester in which the concurrent credit is earned and not more than six units of such credit will be accepted on the minimum unit requirements for the master's degree. (For further information, refer to the Graduate Bulletin.)

Concurrent Postgraduate Credit

A senior who is within seven units of completing requirements for the bachelor's degree and who has been admitted to teacher education may petition the Dean, School of Education, to take a maximum of 12 units of 100-numbered courses for concurrent postgraduate credit with remaining requirements for a bachelor's degree to apply toward the minimum unit postgraduate requirements for a teaching credential. The bachelor's degree must be completed at the end of the semester in which the concurrent postgraduate credit is earned. Enrollment in 200-numbered courses is not permitted. Extension courses are not acceptable for postgraduate credit.

Credit for Extension Courses

The maximum amount of extension and correspondence credit which may be accepted toward the minimum requirements for the bachelor's degree is 24 semester units, not more than 12 of which may be transferred from another college or university, except that courses taken through the United States Armed Forces Institute, or other official military correspondence schools, shall not be included within these limits. Extension and correspondence credit do not count in satisfaction of the minimum residence requirement. A maximum of six units in extension courses at San Diego State may be accepted as part of the requirements for the master's degree, subject to limitations described in the Graduate Bulletin.

Students desiring to enroll concurrently in extension courses and in the regular college program are subject to the regulations on excess study load. Such students should obtain approval from the Dean of Admissions in advance of registration.

Credit by Examination

Approval to receive credit-by-examination is granted at the discretion of the appropriate college authorities and under the following conditions:

(1) The student must be matriculated, in good standing (not on probation), be registered in at least one regular course (not Extension) at the time credit-by-examination is authorized, and pay for additional units if cost exceeds fees already paid. Application for credit by examination must be made within the time limits for filing a change of program as listed in the Academic Calendar each semester. In summer sessions the total units earned for courses and examinations can not exceed the limit authorized by the Education Code.

(2) Concurrent approval of the chairman of the department concerned and the Dean of Undergraduate Studies is required prior to taking the examination. Forms for approval may be obtained from the Registrar.

(3) Credit-by-examination is restricted to regular undergraduate courses listed in the general catalog; does not include 200-numbered, 300-numbered, or Extension courses; cannot exceed 30 units as applicable to graduation; and does not count as residence credit.

(4) Credit-by-examination is not treated as part of the student's study load and, therefore, is not considered for Selective Service purposes or by the Veterans Administration in the application of their respective regulations; and is seldom accepted as transfer credit between collegiate institutions.

Credit for Advanced Placement and College Level Examinations

San Diego State will grant advanced placement and advanced credit to high school students who take the Advanced Placement Examination of the College Entrance Examination Board prior to their enrollment and attain scores of 3, 4, or 5. A maximum of 15 semester units, with no more than three units in any one field, will be awarded for these examinations upon completion of one semester at this institution.

High school students who intend to participate in this program should indicate at the time they take the Advanced Placement Examinations that their test scores be sent to the university. To obtain credit or advanced placement, the student should consult the Dean of Undergraduate Studies.

San Diego State will consider the granting of credit to those students who have attained a score at or above the 25th percentile on each test of the General Examinations of the College Level Examination Program. Scores should be forwarded to the Admissions Office for evaluation.

Credit for Military Service

The university is guided by the recommendations of the American Council on Education in granting undergraduate credit toward the bachelor's degree for military service. Postgraduate credit is not granted.

To obtain credit for military service, the student must be fully matriculated and enrolled in the college. The military form DD-214 must be filed with the Admissions Office if military credits are to be counted toward the bachelor's degree or used to shorten the time needed for the degree. This form, or equivalent records verifying active military service in the United States armed forces, should be submitted at the time of applying for admission to the university.

Student Classification

A matriculated student is one who has complied with all requirements for admission to the university and has received his official Notice of Admission. All students taking courses in any regular semester must be matriculated students. Only in summer sessions or in extension courses may a student who has not matriculated be accepted for enrollment.

Each student who enrolls in one or more summer session classes shall be classified as a summer session student. Each student who enrolls in one or more extension classes shall for his extension class work be classified as an extension class student. Such students need not be matriculated students as a prerequisite for enrollment in classes.

Freshman. A student who has earned a total of fewer than 30 semester units.

Sophomore. A student who has earned a total of 30 to 59 semester units, inclusive.

Junior. A student who has earned a total of 60 to 89 semester units, inclusive.

Senior. A student who has earned a total of 90 semester units or more.

Graduate. A student who has completed a four-year college course with an acceptable baccalaureate degree from an accredited institution. For information on classification of graduate students, see the Graduate Bulletin.

Student Program and Records

Transcripts of Record

A student may obtain an official transcript of his record by filing an application at the Registrar's Office. A fee of \$1 is charged (first copy free). One week should be allowed for the processing and mailing of

the transcript. Transcripts sent from one college to another are considered as official. Transcripts presented by a student to a college are considered to be unofficial and are usually not accepted. Transcripts from other schools or colleges become the property of this college and will not be released nor will copies be made.

Evaluation

An evaluation is a summary of college work completed and of requirements to be completed for a bachelor's degree or credential. To be eligible for an evaluation, a student must have completed at least 60 units of acceptable college work and be qualified for full matriculation. Authorization for more than one evaluation during any one semester or one evaluation in nine weeks of summer session requires special permission of the Board of Admissions and Evaluations.

A student who has earned 60 semester units or more, who has not received an evaluation, should apply at the Evaluations Office for an official evaluation. The evaluation is made on the regulations in effect at the time the student entered this college, except as otherwise provided in the California Administrative Code, Chapter 5, Section 40401, Election of Regulations. (Further information is given in the section on Graduation Requirements.)

After an interval of five years from the time an evaluation is made, courses in education to be applied toward a teaching credential are subject to re-evaluation.

Change of Program After Registration

A change of program after registration includes the following: withdrawal from a class; adding a class; adding or reducing units to a class for which the student is already registered; changing a section of the same course.

A change of program may be made on or before the published dates. Forms for the change of program may be obtained at the Registrar's Office. A fee of \$1 is charged for each change of program made after registration. The effective date of withdrawal or change of program is the date on which the completed and acceptable forms are filed by the student at the Registrar's Office.

Change of Major or Curriculum

At the time of admission to the college, each undergraduate student is assigned to a major field or curriculum, or is designated as an undeclared major. After registration, any student wishing to change his major or curriculum, must make application at the Evaluations Office.

Veterans using veteran benefits must obtain appropriate approval from the Veterans Administration for necessary changes in letters of eligibility.

Withdrawal and Readmission

The student is held for every course appearing on his official study list. Any withdrawal from the university or from a class must be officially filed at the Registrar's Office; otherwise the student will receive a grade of "F" in the course. Application for withdrawal is made at the Registrar's Office.

Withdrawal Deadline Dates and Penalties. If a student withdraws officially from a class before the end of the third week of classes, the course will not be recorded on the permanent record. If he withdraws after the third week and not later than the end of the ninth week of classes, either a W (withdrawal passing) or WF (withdrawal failing) will be recorded, depending upon whether he is passing or failing the course on the date of filing the request for withdrawal. (WF is equivalent to a failing grade.) After the ninth week of classes, withdrawal from a class is not permitted. A final grade will be recorded for each class for which the student is enrolled. Withdrawal from the university will be permitted up to 10 days preceding the final examination schedule; however, the student will receive a W or WF grade in each class, depending upon whether he is passing or failing in the class on the date of filing his request for withdrawal.

Unofficial Withdrawal. A student withdrawing unofficially from class or from college will receive failing grades in all courses which he stops attending. An unofficial withdrawal is one in which a student stops attending classes without filing official withdrawal forms within the deadlines established for withdrawing.

Veterans unofficially withdrawing will have veteran's allowances immediately suspended and will be subject to full repayment of allowances received after date of unofficial withdrawal.

Withdrawal to Enter Military Service. Under certain conditions, a student withdrawing from college to enter military service is entitled to apply for refund of materials and service fees or for partial credit (but not both). To qualify under this regulation, the student must (a) be a civilian who, because of his own initiative, receives orders to immediate extended active duty, or (b) be a civilian who receives orders to immediate extended active duty by government action, or (c) be a reservist called to immediate extended active duty. (Not applicable to other military personnel enrolled in the college.)

Entrance upon extended active military duty must be without unreasonable and unnecessary delay (normally within 30 days) after the date of withdrawal from college to qualify the student for refund or partial credit. Verification of entry upon extended active duty is required and must be by written statement of the commanding officer or by official copy of orders. Application for withdrawal from college may be made by the student in person, or by telephone or mail. Forms for withdrawal will also be sent to the student if requested by a person designated by the student as his representative in making the request.

If the student is passing in courses at the time of withdrawal from college, partial credit may be granted in undergraduate courses at the rate of one-third credit for completion of the first six weeks of the semester, or two-thirds for the first 12 weeks. The college does not wish to influence the student in choosing between partial credit and refund of fees; however, it should be pointed out that partial credit in a course may not satisfy some specific requirement for which that course may be needed, and if the course is later repeated by the student the partial credit will be lost as "repeated" work.

Readmission. A student who withdraws from the university must file application for readmission if a full semester elapses between his withdrawal and his return. A \$20 application fee for readmission is required if the applicant was not regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, or if the student was enrolled at another institution subsequent to the last attendance at San Diego State.

Speech Competency

A Speech Competency Test is given to all entering undergraduate students at the time of registration. Taking the test fulfills the university's requirement in speech competency. Students who do not do well in the test will be advised to enroll in Speech Pathology and Audiology 3, Oral Communication Laboratory, or to seek other remedial help. Completion of the course gives one unit of credit.

Credit and Study List Limits

A unit or credit hour represents 50 minutes of lecture or recitation combined with two hours of preparation per week throughout one semester of 18 weeks. Two hours of activity (as in physical education) or three hours of laboratory (as in the sciences) are considered equivalent to one hour of lecture.

At registration time, no student will be permitted to enroll for more than 17½ units. However, beginning with Wednesday of the first week of classes, a student may exceed this limit, though if he is employed outside of college he is strongly advised to undertake a modest college program. Going to college is properly a full-time job. Normally a student can expect to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week.

Scholastic Probation and Disqualification

An undergraduate student whose scholarship record falls below a C average (2.0) for all college work attempted or all work attempted at San Diego State will be placed on probation. Probation may be

continued provided that he obtains a C average or better each semester while on probation. Probation will be lifted when he has attained a C average or better on all college work attempted and on all work attempted at San Diego State.

If, however, his scholarship falls below a C average (2.0) in any single semester or summer session, he will be subject to disqualification and dismissal from the university.

A veteran who is disqualified forfeits his rights to veterans' benefits. If this happens, he should consult the Veterans Administration regarding continuance of education.

A disqualified student may be reinstated by recommendation of the Board of Admissions. Application for reinstatement should be made at the office of the Dean of Admissions and Records.

Similar, though more stringent, regulations apply to graduate students. See the Graduate Bulletin.

Student Discipline and Grievances

Sections 41301 and 41302 of the California Administrative Code, Title 5, read as follows:

41301. Expulsion, Suspension and Probation of Students. Following procedures consonant with due process established for the state college of which he is a student, any student of a state college may be expelled, suspended, placed on probation or given a lesser sanction for one or more of the following causes which must be state college related:

(a) Cheating or plagiarism in connection with an academic program at a state college.

(b) Forgery, alteration or misuse of state college documents, records, or identification or knowingly furnishing false information to a state college.

(c) Misrepresentation of oneself or of an organization to be an agent of a state college.

(d) Obstruction or disruption, on or off college property, of the state college educational process, administrative process, or other college function.

(e) Physical abuse on or off college property of the person or property of any member of the college community or of members of his family or the threat of such physical abuse.

(f) Theft of, or non-accidental damage to, state college property, or property in the possession of, or owned by, a member of the college community.

(g) Unauthorized entry into, unauthorized use of, or misuse of state college property.

(h) On state college property, the sale or knowing possession of dangerous drugs, restricted dangerous drugs, or narcotics as those terms are used in California statutes, except when lawfully prescribed pursuant to medical or dental care, or when lawfully permitted for the purpose of research, instruction or analysis.

(i) Knowing possession or use of explosives, dangerous chemicals or deadly weapons on state college property or at a state college function without prior authorization of the state college president.

(j) Engaging in lewd, indecent, or obscene behavior on state college property or at a state college function.

(k) Abusive behavior directed toward a member of the college community.

(l) Violation of any order of a state college president, notice of which had been given prior to such violation and during the academic term in which the violation occurs, either by publication in the campus newspaper, or by posting on an official bulletin board designated for this purpose, and which order is not inconsistent with any of the other provisions of this Section.

(m) Soliciting or assisting another to do any act which would subject a student to expulsion, suspension or probation pursuant to this Section.

(n) For purposes of this Article, the following terms are defined:

(1) The term "member of the college community" is defined as meaning state college Trustees, academic, non-academic and administrative personnel, students, and other persons while such other persons are on state college property or at a state college function.

(2) The term "state college property" includes:

(A) real or personal property in the possession of, or under the control of, the Board of Trustees of the California State Colleges, and

(B) all state college feeding, retail, or residence facilities whether operated by a college or by a state college auxiliary organization.

(3) The term "deadly weapons" includes any instrument or weapon of the kind commonly known as a blackjack, slung shot, billy, sandclub, sand bag, metal knuckles, any dirk, dagger, switchblade knife, pistol, revolver, or any other firearm, any knife having a blade longer than five inches, any razor with an unguarded blade, and any metal pipe or bar used or intended to be used as a club.

(4) The term "behavior" includes conduct and expression

41302. Expulsion, Suspension or Probation of Students; Fees and Notification.

The President of the state college may place on probation, suspend, or expel a student for one or more of the causes enumerated in Section 41301. No fees or tuition paid by or for such student for the semester, quarter, or summer session in which he is suspended or expelled shall be refunded. If the student is readmitted before the close of the semester, quarter, or summer session in which he is suspended, no additional tuition or fees shall be required of the student on account of his suspension. In the event that a student who has not reached his twenty-first birthday is suspended or expelled, the President shall notify his parent or guardian of the action by registered mail to the last known address, return receipt requested.

Standards and procedures of discipline at San Diego State are determined by these regulations.

If a student believes that a professor's treatment of him is grossly unfair or that a professor's behavior is clearly unprofessional, he may bring his complaint to the proper college authorities and official reviewing bodies by following the *Procedures for Handling Student Grievances Against Members of the Faculty*, adopted by the Faculty Senate. A copy of the procedures may be obtained from the Dean of Students (AD 201).

Degrees and Programs

Degrees Available

"A" indicates a degree in applied arts and sciences, "L" in liberal arts and sciences.

- *Accounting, B.S.
- Aerospace Engineering, M.S.
- †Afro-American Studies, A.B. (L)
- †American Studies, A.B. (L), M.A.
- Anthropology, A.B. (L), M.A.
- Art, A.B. (A, L), M.A.
- †Asian Studies, A.B. (L), M.A.
- Astronomy, A.B. (A, L), M.S.
- Biology, A.B. (A, L), B.S. (A), M.A., M.S.
- Botany, B.S. (A), A.B. (L)
- Business Administration, B.S., M.B.A., M.S.
- †Chemical Physics, B.S. (A)
- Chemistry, A.B. (A, L), B.S. (A), M.A., M.S., Ph.D.
- †Child Development, B.S. (A)
- §City Planning, M.C.P.
- Civil Engineering, M.S.
- Classics, A.B. (L)
- †Comparative Literature, A.B. (L)
- #Counseling, M.S.
- §Criminal Justice Administration, B.S. (A), M.S.
- Drama, A.B. (A), M.A.
- **Ecology, Ph.D.
- Economics, A.B. (L), M.A.
- Education, M.A.
- Electrical Engineering, M.S.
- Elementary Education, B.E.
- Engineering, B.S.
- English, A.B. (L), M.A.
- ††Environmental Health, B.S. (A)
- †European Studies, A.B. (L)
- *Finance, B.S.
- French, A.B. (L), M.A.
- **Genetics, Ph.D.
- Geography, A.B. (L), M.A.
- Geology, B.S. (A), M.S.
- German, A.B. (L), M.A.
- Health Science, B.S. (A), M.A.
- History, A.B. (L), M.A.
- Home Economics, A.B. (A), M.S.
- Industrial Arts, A.B. (A), M.A.
- *Information Systems, B.S.
- *Insurance, B.S.
- Journalism, A.B. (L)
- †Latin American Studies, A.B. (L), M.A.
- †Linguistics, M.A.
- *Management, B.S.
- *Marketing, B.S.
- †Mass Communications, M.S.
- Mathematics, A.B. (A, L), M.A., M.S.
- Mechanical Engineering, M.S.
- Mexican-American Studies, A.B. (L)
- Microbiology, B.S. (A), A.B. (L), M.S.
- Music, A.B. (L), B.M. (A), M.A.
- Nursing, B.S. (A)
- Philosophy, A.B. (L), M.A.
- Physical Education, A.B. (A), M.A.
- Physical Science(s), A.B. (A), M.A.
- Physics, B.S. (A), A.B. (L), M.A., M.S.
- Political Science, A.B. (L), M.A.
- Psychology, A.B. (A, L), M.A., M.S.
- Public Administration, A.B. (A), M.P.A.
- †† Radio-Television, A.B. (A), B.S. (A), M.A.
- *Real Estate, B.S.
- Recreation Administration, A.B. (A)
- Religious Studies, A.B. (L)
- Russian, A.B. (L), M.A.
- †Russian Area Studies, A.B. (L)
- †Social Science, A.B. (A, L), M.A.
- ## Social Welfare, A.B. (L)
- Social Work, M.S.W., M.S.S.W.
- Sociology, A.B. (L), M.A.
- Spanish, A.B. (L), M.A.
- †Special Major, A.B. (A, L)
- §§ Speech, A.B. (A), M.A.
- Speech Pathology and Audiology, A.B. (A), M.A.
- ***Statistics, M.S.
- # Vocational Arts, B.V.E.
- Zoology, B.S. (A), A.B. (L)

* A concentration with the B.S. in Business Administration.

† An interdisciplinary program

†† Offered by the Department of Physics

§ Offered by the Department of Public Administration and Urban Studies

Offered by the School of Education

** Offered by Biological Sciences

†† Offered by the Department of Microbiology

††† Offered by the Department of Telecommunications and Film

§§ Offered by the Department of Speech Communication

Offered by the School of Social Work

*** Offered by the Department of Mathematics

Teaching Credentials

Standard teaching credential
with specialization in:

- (a) elementary teaching
- (b) secondary teaching
- (c) community college
teaching

Specialized preparation in lieu
of a minor

Standard designated services
credential

Standard supervision credential

Standard administration cre-
dential

Restricted credential

Minors for the Bachelor's Degree

Accounting
Aerospace Studies
Anthropology
Art
Astronomy
Biology
Botany
Business Management
Chemistry
Classics
Comparative Literature
Dance
Drama
Economics
Employee Relations
Engineering
English
Finance
French
Geography
Geology
German
Health Science
History
Home Economics
Industrial Arts
Information Systems
Insurance

Italian
Journalism
Library Science
Marketing
Mathematics
Mexican-American Studies
Microbiology
Music
Philosophy
Physical Education
Physical Science
Physics
Political Science
Production and Operations
Management
Psychology
Public Administration
Radio-Television
Real Estate
Recreation
Religious Studies
Russian
Social Welfare
Sociology
Spanish
Speech
Zoology

All-university requirements for all bachelor's degrees are described in the next section. Specific requirements set by departments or schools are described in each departmental or school section. Requirements for all graduate degrees (master's and doctor's) are described in the Graduate Bulletin. Interdisciplinary programs and certain preprofessional programs not necessarily leading to degrees are described in the

section so titled. The Air Force Reserve Officers' Training Corps program, leading to a commission in the United States Air Force as well as to the bachelor's degree, is described in "Aerospace Studies" in the section *Courses and Curricula*.

Graduation Requirements

To qualify for graduation with a bachelor's degree from San Diego State, the student must fulfill all of the following requirements.

1. **Competency:** in mathematics and composition, as demonstrated by tests or by satisfactory completion of designated courses.

Mathematics competency may be demonstrated either by successfully completing Mathematics 3, 10B, or 18, or a higher level mathematics course, or by satisfactorily passing the Mathematics Competency Test. Transfer students with 60 units completed take the competency test as a part of their entrance tests. Other students, not planning to take one of the mathematics courses listed above, must take the test at the times listed in the class schedule, published each semester.

Students failing to make a satisfactory score on the test, and not including one of the courses listed above in their degree program, must do individual remedial work, and make a satisfactory score on a second test, which will be administered on an individual basis by the Test Office. Tutorial help is available in the Mathematics Department on a scheduled basis.

The Writing Competency Test may be taken at the first scheduled date for the test following the student's completion of 45 units of college work. All students transferring to this university with 45 units or more of advanced standing credit may take this test before registration. Passing of this test or the retake, which includes the writing of an essay, or satisfactory completion of English W, English 100, or remedial programs prescribed for the student by the College Committee on English fulfills the requirement.

Candidates for the B.E. degree are exempt from this requirement, since special regulations, described under "Education" in the catalog section, Professional Schools, apply to them.

2. **Units.** For the A.B. degree, a total of 124 units is required; for the B.S. in engineering, a total of 132; for all other B.S. degrees, the total is 128. Of the total, 36 units must be upper division for the B.S. and B.M., 40 for the B.V.E., and for the A.B. in applied arts and sciences, and 45 for the A.B. in liberal arts and sciences. Twenty-four units must be earned in residence at this university, 12 of which must be among the last 20 units (24 for the B.E.) applicable to the degree. For the A.B. in liberal arts and sciences, no more than 48 units in one department can apply to the degree. In the School of Business Administration, at least 52 units of the total must be in business and economics, at least 52 outside those areas.

3. **Major.** Every student must complete a departmental or interdisciplinary major and, if his major calls for it, a minor as well. A major is defined as a required block of upper division courses.

4. **Grades.** In all courses attempted, in all courses at this university, and in all courses in the major, the student must achieve an average grade of C (2.0).

5. **American Institutions.** This requirement may be satisfied by any one of the following pairs of courses:

History 17A and 17B;
History 172A and 172B;
History 184A and 184B;
Mexican-American Studies 20A and 20B;
Mexican-American Studies 41A and 41B;
Political Science 1 and 2;
Political Science 105 and 115;
Political Science 105 and 117;
Political Science 105 and 118;
Political Science 115 and 117;
Political Science 115 and 118

Alternatively, this requirement may be met by satisfactory completion of comprehensive examinations in each of the following areas: American history, institutions, and ideals; the United States Constitution; and California state and local government. A bibliography is obtainable at the Test Office in the Administration Building. The examinations are administered every semester and during Term I in the summer.

The requirement may also be met by satisfactory completion of a combination of courses and examinations. Relevant courses are:

American History

History 8A and 8B; 176A and 176B; 177A and 177B; 179A and 179B; 181A and 181B.

U.S. Constitution

History 17A; 172A; 177A and 177B; Political Science 2; 115; 139A and 139B.

California Government

History 8B, 17B, 172B, 189B, Political Science 2, 115, 117, 118.

6. **General Education.** A minimum of 40 semester units in general education must be completed. Courses taken in satisfaction of requirements for the major and minor may not be counted toward the general education requirement, and not more than 15 units in preparation for the major may be applied to general education requirements.

For all bachelor's degrees *except* the A.B. in *liberal arts and sciences*, the requirements are as follows:

A. Natural Sciences

At least two courses (minimum of 6 units) to include at least 1 unit in a laboratory course

1. One course (minimum 2 units) in life sciences—biology, botany, microbiology, or zoology
2. One course (minimum 2 units) in physical sciences—astronomy, chemistry, geology, meteorology, physical geography, physical science, or physics.
3. Electives in any of the above or in oceanography or general psychology.

B. Social Sciences

1. At least two courses (minimum 3 units for each course) taken in two departments selected from anthropology, economics (except 2), geography (except 1 or 3), public administration, or sociology (except 35 or 60).
2. Electives in any of the above.

C. Humanities

1. At least two courses (minimum 6 units) taken in two departments selected from comparative literature, religious studies, humanities, philosophy (excluding logic), literature in English or literature in a foreign language.
2. Electives in any of the above or in art, music, drama, semantics, rhetorical theory, or history (western civilization, Asian civilization, or ancient history).

D. Basic Subjects

One course (minimum 2 units) from each of three of the five areas:

1. written communication in English
2. oral communication
3. logic
4. mathematics or statistics
5. foreign language (excluding courses in literature or civilization)

Total units in Parts A, B, C, and D must be not less than 32 units; courses which satisfy the requirement in American Institutions may be counted in the 32 units total but may not apply to the 6-unit minimum in either Part B or Part C.

E. Physical Activities, minimum of 2 units

A minimum of four semesters of physical activity in courses or equivalent monitored activity, to be fulfilled by

1. Completing four $\frac{1}{2}$ unit physical education activity courses over a period of at least four semesters
2. Completing four satisfactory semesters of regular monitored physical activity for credit
3. Combinations of 1 and 2 to give the equivalent of four semesters of physical activity

F. Electives to complete 40 units

Additional units may be elected from the above, from courses specifically excluded above, or from any other courses listed in this catalog.

For students whose A.B. is to be in *liberal arts and sciences*, the requirements are as follows:

A. Natural Science

Either

1. Seven units

Life science with laboratory

Choose one:

Biology 1 and 2

Microbiology 1

Biology 4

Zoology 8

Physical science with laboratory

Choose one:

Astronomy 1 and 9

Physical Science 1 and 3

Chemistry 1A

Physical Science 2 and 4

Chemistry 2A

Physical Science 3 and 5

Chemistry 10A

Physics 4A

Geology 2 and 3

Physics 2A and 3A

Geology 4

Physics 5

Or

2. Nine units selected from Geography 1 or 3, or any courses in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, zoology. At least 3 units must be in a life science, and at least 3 units must be in a physical science; at least one course must be a laboratory course.

B. Mathematics and Foreign Language

Mathematics 18 or higher numbered mathematics course, or satisfactory performance on the placement examination of the Department of Mathematics.

Foreign Language—4 units

The requirement may be met by two years of one foreign language in high school.

Eight additional units in mathematics (course 21 or higher) or in foreign language.

C. Social Sciences

Any two 3-unit courses in anthropology, economics, geography (except Geography 1 or 3), political science, or sociology

(except Sociology 35). One of the courses may be Mexican-American Studies 50. However, no more than 6 units of Mexican-American Studies or political science may be used to fulfill the requirement in social sciences. The two courses must be in different departments. If the entire requirement in American Institutions is met by examination, add another 3-unit course in anthropology, economics, geography (but not Geography 1 or 3), political science, or sociology (except Sociology 35).

D. Humanities and Fine Arts

Either

1. The Scope of Civilization

History 4A-4B or 9A-9B

and

Two courses taken in two departments selected from humanities, literature, philosophy (except logic), or religious studies.

Or

2. The Scope of Civilization

Comparative Literature 52A-52B, or

English 52A-52B, or

Humanities 59A-59B, or

Humanities 150 and 151

and, in a different department,

One additional course (minimum 3 units) in humanities, literature, philosophy (except logic), or religious studies.

and

One additional course (minimum 3 units) in art, humanities, literature, music, philosophy (except logic), or religious studies.

E. Other

1. English 5 or 6 or Mexican-American Studies 2B

2. Eight or nine units from any three of the following groups:

a. English 5 or 6,

b. Health Science and Safety 21,

c. Mathematics 155 or Philosophy 20, 121, or 122,

d. Mexican-American Studies 2A or Speech Communication 3 or 4,

e. Psychology 1

3. Physical Education

A minimum of four semesters of physical activity in courses or equivalent monitored activity, to be fulfilled by:

a. Completing four $\frac{1}{2}$ -unit physical education activity courses over a period of at least four semesters, or

- b. Completing four satisfactory semesters of regular monitored physical activity for credit, or
- c. Combination of *a* and *b* to give the equivalent of four semesters of physical activity.

The total of 40 units may be reduced by examination on approval by the Dean of Undergraduate Studies and by the chairman of the department in which the examination is to be taken. No course may be used to satisfy more than one requirement.

A student who is certified by another collegiate institution as having completed the General Education-Breadth requirements will be expected to complete the pattern prescribed by San Diego State, provided that for such completion not more than 23 units are required in addition to the 40 units applied to fulfillment of the General Education-Breadth requirements. Of the total of 63 units, up to 12 units will be waived in proportion to that part of the foreign language requirement completed in high school or by examination. If the student cannot fulfill all the recommended pattern within the 63 units required, he should present early in his first semester here, at the office of the Dean of Undergraduate Studies, a proposed plan of courses to be taken. If approved, this becomes the required pattern. Late presentation of the proposed plan will not excuse the student from completing a pattern which was possible at the time of admission.

Any student with a minimum grade point average of 3.25 at this institution, with a declared major, and with 15 units or more but not over 45 units of college work may submit to the Dean of Undergraduate Studies an alternate program, with supporting reasons, for fulfilling general education—breadth requirements, compatible with the requirements listed below. If approved, the proposed program will replace the standard provisions. A student with such an approved program may, at his option, elect to revert to the standard program in effect at the time of his graduation; any student who changes his major shall revert to the standard program or seek approval of a new proposal.

- A. Natural Sciences, minimum of two courses
- B. Social Sciences, minimum of two courses
- C. Humanities, minimum of two courses
- D. Basic Subjects, minimum of two courses

For a total of 32 units

- E. Electives, maximum of 8 units, to provide a total of 40 units
- F. Additional requirement, 5 upper division units, excluding courses in the area of the student's major and minor

Within the proposal, no courses in the student's major or minor may apply to the requirements, and not more than 6 units shall be applicable to preparation for the major.

Application for Graduation. Graduation is not automatic on the completion of requirements. The student who intends to graduate must take the initiative. When he believes that he is eligible, he should file

an application with the Evaluations Officer, Administration Building, not later than the end of the third week of classes in the fall if he wants to graduate in midyear, and not later than the end of the eleventh week of classes in the fall if he wants to graduate in June or at the end of a summer session. The Class Schedule each semester specifies the exact date.

Election of Regulations for Graduation

A student remaining in continuous attendance in regular sessions and continuing on the same curriculum may, for purposes of meeting graduation requirements, elect to meet the graduation requirements in effect either at the time of his entering the curriculum or at the time of his graduation therefrom, except that substitutions for discontinued courses may be authorized or required by the proper authorities.

Graduation with Honors and Distinction

With the approval of the faculty, graduation with honors is granted to those students in each graduating class who have achieved high grade point averages by the beginning of the fall semester for mid-year graduates and by the end of the fall semester for June and summer session graduates.

The grade point average is computed on work done at this institution, except that if the grade point average for work at other collegiate institutions is lower, those grades are included in the computation.

To be considered for computations relevant to honors or distinction, grades for removal of Incompletes and all other grade changes must be received in the Registrar's Office no later than the end of the fifth week of the semester in which the student plans to graduate and the student must file an application for graduation prior to the published deadline.

Upon recommendation of his major department and with the approval of the faculty, a student doing superior work in his major field may be graduated with distinction in that field.

Commencement

Commencement exercises are held once a year at the end of the spring semester for students who were graduated at midyear, those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session. The president of the university, by the authority of the Trustees and on recommendation of the faculty, awards the degrees.

Second Bachelor's Degree

A second bachelor's degree may be earned if the student has an excess of 24 units beyond the minimum requirements for the first bachelor's degree, makes a complete change in major or degree, fulfills all requirements for the degree as required by this college, and has approval of the Dean of Undergraduate Studies.

Interdisciplinary and Preprofessional Programs

Africa and the Middle East

See Social Science, below.

Afro-American Studies

With the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. Sociology 1, English 5, and 12 additional units in courses prerequisite to upper division courses to be taken in the major. Economics 1A-1B and Political Science 1 and 2 are recommended.

Major. A minimum of 30 upper division units, to be selected from the list below and from other suitable courses, in a program approved by the adviser in Afro-American studies. Required courses, nine units: Comparative Literature 180; History 183; Sociology 124 or 125; 15 units selected from the following: Economics 150, 185; History 173A-173B; Music 151D; Political Science 118, 130; Social Welfare 100A-100B; Sociology 157, 124 or 125; and six units of electives as approved by the adviser.

Foreign language requirement. Twelve units in a foreign language or demonstration of equivalent knowledge in a reading examination administered by the foreign language department concerned.

American Studies

In Liberal Arts and Sciences

The major in American Studies is offered by the College of Arts and Letters.

Preparation for the major. History 17A-17B, and English 53A-53B. (12 units.)

Major. A minimum of 30 upper division units to include Humanities 180, History 179A-179B (may be used for group B), and two groups of 9 to 12 upper division units chosen from Group A, Group B, or Group C and approved by the adviser.

The remainder of the courses needed to fulfill the 30 unit requirement may be taken in courses listed in Groups A, B, C, and D, except that no more than 12 of the 30 units may be taken from any one group.

Group A: American Literature. English 130, 131, 133, 134, 135, 136, 138, 139, 198 (when relevant to American Studies).

Group B: American History. History 171A-171B, 172A-172B, 173A-173B, 174, 175A-175B, 175C, 176A-176B, 177A-177B, 178A-178B, 179A-179B, 180 (when relevant to American studies), 181A-181B, 183A-183B, 184A-184B.

Group C: Social Sciences. Economics 111A-111B, 135, 138, 173, 174; Geography 121, 155; Political Science 105, 115, 116, 120, 123S, 127A-127B, 139A-139B; Sociology 124, 125, 157; Journalism 117, 121.

Group D: Electives. Art 157; Music 151D; Philosophy 164; Anthropology 171.

Foreign Language Requirements. Choice of foreign language should be made in consultation with adviser.

Asian Studies

With the A.B. Degree in Liberal Arts and Sciences

The major in Asian Studies is offered by the College of Arts and Letters.

Preparation for the major. Six units in History 4A-4B, 9A-9B, or Philosophy 1A-1B; six units in Anthropology 1B-1C, Economics 1A-1B, Geography 1 and 2, or Political Science 1 and 3; and Humanities 59A-59B. (18 units.) Art 52A-52B and Comparative Literature 70A-70B are recommended.

Major. A minimum of 30 upper division units to include: From the Humanities not less than 12 units from at least two departments chosen from Comparative Literature 152A, 152B, 170; History 190A, 190B, 191A, 191B, 192, 193, 194, 195, 196A-196B, 197A-197B; Philosophy 135 (when appropriate); Religious Studies 121A-121B, 126A-126B; and from the social sciences not less than 12 units from at least two departments chosen from Anthropology 175, 177, 178, 186; Economics 102, 115; Geography 131, 133, 134, 150; Political Science 183, 187, 191. Recommended: Business Administration 165.

Foreign language. Asian language recommended.

Child Development

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Anthropology 1A; Home Economics 4A; Home Economics 70 (or Psychology 106 or Education 111 in upper division); Home Economics 35, Social Welfare 30 or Sociology 35; Psychology 50; Sociology 1; Sociology 60 or Psychology 70 (20 units).

Major. A minimum of 36 upper division units to include Psychology 131, and 175 or Education 112; Sociology 135 or Home Economics 135; Education 111 or Psychology 106 (or Home Economics 70 in lower division); Sociology 140 or Psychology 145; Home Economics 171; and Biology 159; and an additional 18 units to be selected with the approval of the adviser, at least 12 and not more than 15 units of which must be in an area in which the student wishes to concentrate.

Comparative Literature

With the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. Comparative Literature 52A-52B.

Major. A minimum of 24 upper division units to include at least 12 units in comparative literature courses, at least six units in a foreign literature (in original language), at least six units to be chosen, with adviser approval, from one of the following: comparative literature courses, foreign literature courses, and courses in related fields.

Dental Hygiene

See Predental, below.

European Studies

With the A.B. Degree in Liberal Arts and Sciences

This major is offered by the College of Arts and Letters.

Preparation for the major. Twenty-two units to include Art 50A or 50B; Economics 1A-1B, or Geography 1 and 2, or Political Science 1 and 3; History 4A-4B; and 12 units in one of the major European languages (French, German, Italian, Russian, Spanish) beyond the minimum of four units required in liberal arts and sciences.

Major. Thirty upper division units to be chosen with approval of the adviser and distributed as follows: six units in Humanities to include Humanities 150A-150B or 151A-151B; six units in a major European foreign language; nine units in economics, geography, history, or political science; six units in art, comparative education, comparative literature, music, or philosophy; three units of electives.

Humanities

In Liberal Arts and Sciences

The Humanities curriculum is offered by the College of Arts and Letters.

The intensive program in humanities provides a course of study which gives a comprehensive view of the development of contemporary civilization, with practice in critical thinking and careful expression. The program encourages extensive reading in history, literature, and philosophy, with oral and written discussion.

Specific Requirements and Recommendations

- I. A major in one of the departments of the College of Arts and Letters, consisting of 24 upper division units and the required introductory courses, plus a minor if required by the major department. Knowledge of one foreign language is required, as specified in the departmental major.
- II. Twelve or more upper division units in related fields, selected with approval of the faculty adviser for the curriculum. (May include courses in the minor, if appropriate.)
- III. The adviser will assist the student who undertakes this program to distribute his course work among the following areas:
 - (a) The origins of Western Civilization: Greek and Roman, Hebrew, Medieval.
 - (b) Western Civilization, 1500-1900; Continental, British, and American.
 - (c) Contemporary Civilization.
 - (d) Type courses concerned with more than one period; comparative study of Asian Civilization; linguistics and composition; theory.
- IV. Humanities 198, Integration in the Humanities (3 units).

The student will file with the Evaluations Office a master plan approved by the adviser for the humanities curriculum.

Latin American Studies

With the A.B. Degree in Liberal Arts and Sciences

The major in Latin American Studies is offered by the College of Arts and Letters. The major provides (1) a basis for a more effective understanding of the cultures and governments of the western hemisphere; and (2) a basic education and training for a business or professional career involving understanding of Latin America.

High school students preparing to enter this program should include in the high school course of study not less than three years of study in one foreign language, preferably Spanish or Portuguese. Proficiency in either of these languages is indispensable to a successful career in this area of study.

Requirements

Preparation for the major. Portuguese 1 and 2; Spanish 1, 2, 3, 4, 10, 11, and 41; 12 units selected from Anthropology 1C, Economics 1A, 1B, Geography 1, History 8A, 8B, Political Science 1, and 3.

Major. A minimum of 36 upper division units to include Spanish 104A-104B, 106A-106B; and 24 units in social science courses. At least 21 units must be from courses of Latin American content. The student should file with the Evaluations Office—preferably early in his first semester of upper division work—a master plan approved by the adviser for the Latin American Studies curriculum.

Predental

The preprofessional programs described here may all be pursued in conjunction with a degree program. The recommended courses listed do not by themselves constitute a bachelor's degree, but they may serve to fulfill some graduation requirements. A student interested in the dental profession should inform himself regarding the entrance requirements of the specific dental college he hopes to attend and choose courses specified by that college. For additional guidance, the student is invited to consult the predental advisers on campus.

The curriculum for dental hygiene is essentially the same as for pre-dentistry.

Students ordinarily elect to concentrate in chemistry, biology and zoology with a major in one and a minor in another.

Many dental schools request that letters of recommendation for applicants be prepared by a predental council rather than by individual professors. Such a council exists on this campus and all western dental schools have been so informed. In order to obtain letters from the council, it is essential that each applicant provide the council with certain information. Obtain the form and instructions from the office of the Department of Biology. This form must be submitted to the Biology Department office by April 1 of the year during which application is being made.

Recommended Course of Study

Freshman year: Biology 1 and 2, Chemistry 1A-1B, English 5, English 6 or other literature course, Health Science and Safety 21, Mathematics 3 and 4, physical education activities, and Speech Communication 3. *Sophomore year:* Biology 15, Chemistry 4 or 5, and 12, Mathematics 21, physical education activities, Physics 1A-1B, or 2A-2B and 3A-3B, Psychology 1, social science (American history, institutions, and ideals, U.S. Constitution, California state and local government), and Zoology 60. *Recommended for the junior year:* Art 119A, Biology 140, 141, 156, Chemistry 112, Psychology 106, 107, and various general education courses.

Prelegal

See the first paragraph under Predental.

The following curriculum is designed to meet the requirements of standard American schools of law for a broad and liberal education, while at the same time providing desirable flexibility in the individual programs. There are two patterns of concentration which will usually be indicated for the prelegal student, either of which may be selected, in consultation with the adviser, to fit best the interests of the student. These are the major-minor pattern and the special major pattern. Subject to individual variation, the fields of economics, history, and political science should receive first consideration when choosing the pattern of concentration as being the most effective background for later professional study in law and for possible activities in the field of business.

Recommended Course of Study

Lower division. Business Administration 1A-1B, Economics 1A-1B, Political Science 1 and 2, and a year course in history. *Upper division:* In the junior and senior years the student will plan his course with the counsel of his adviser in terms of the field of law in which he plans to work, but keeping in mind the entrance requirements and examinations for admission to schools of law. The recommended list below should receive prime consideration by all prelegal students in the selection of courses, though it is to be thought of as flexible in accordance with student needs.

Recommended: Business Administration 127; Economics 131, 135, 170; History 152A-152B, 175B-175C; Political Science 111A-111B, 138, 139A. *Additional:* Economics 150, History 179, Political Science 139B.

In addition to the courses taken in the fields of concentration, upper division electives in English, philosophy, psychology, sociology, and speech communication are recommended. A mastery of English is essential. The approval of a prelegal adviser is required for all master plans. If the special major pattern of concentration is chosen, a copy of the master plan is to be filed with the Evaluations Office.

Premedical

See the first paragraph under Predental.

The completion of entrance requirements for admission to medical colleges requires three years of undergraduate study. However, four years of undergraduate study is usually completed before admission. The premedical student is strongly advised to select a major in a department leading toward an A.B. degree in liberal arts and sciences. This is most readily accomplished by majoring in biology, chemistry, or zoology, although other departmental majors are acceptable. Specific requirements for these majors are described for each department.

High school students planning to enter medicine should include in the high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, and two or three years of German or French.

Recommended Course of Study

The following is a list of courses which will satisfy the entrance requirements of most medical colleges. These courses should be included in the program of the premedical student regardless of his selected major. The entrance requirements for medical colleges differ somewhat and specific requirements of the medical school to which the student wishes to apply should be obtained directly from that medical college. For additional information students should consult the premedical adviser on campus.

Lower division: Biology 1 and 2; Chemistry 1A-1B and 12, and 4 or 5; six units of English, to include English 5; 12 units of French or German; Physics 1A-1B, or 2A-2B and 3A-3B.

Upper division: Biology 155, 156; Chemistry 112.

Strongly recommend: Biology 15, 101; Mathematics 21, 22; Zoology 106.

Russian Area Studies

With the A.B. Degree in Liberal Arts and Sciences

The major in Russian area studies is offered by the College of Arts and Letters.

Preparation for the major. Russian 1, 2, 3, 4, or equivalent. (16 units.) Lower division prerequisites for the upper division courses to be taken in the major. (3-9 units.)

Major. A minimum of 30 upper division units to include nine units from at least two departments in the humanities selected from Comparative Literature 125, 126, History 147A-147B, Humanities 152, Humanities 153; nine units from at least two departments in the social sciences selected from Economics 102, Economics 118, Geography 126, Geography 127, Political Science 181, Political Science 186; six units in Russian selected from Russian 101A-101B, 102A-102B, 103, 104, 105A-105B, 110A-110B; and six units of electives selected with the approval of the adviser.

Social Science

With the A.B. Degree in Applied Arts and Sciences and in Liberal Arts and Sciences

The major in social science is offered by the College of Arts and Letters.

Preparation for the major. A six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. (18 units.) Courses recommended for these sequences are as follows: Anthropology 1A-1B or 1A-1C or 1B-1C, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1 and 2, Sociology 1 and 10.

Major. Thirty upper division units to include 15 units from any field named above; six units from each of two additional fields named above; and three units of electives from any of the fields named above. Courses covering four fields named above, must be completed either in lower division prerequisites or in the major.

Emphasis in Africa and the Middle East

Preparation for the major. Anthropology 2; Economics 1A-1B; Geography 1; History 4A-4B or Political Science 1. Recommended: Comparative Literature 52A-52B and 80A (15-18 units).

Major. Thirty upper division units from the departments of anthropology, economics, geography, history, political science, and sociology, chosen with the consent of the adviser and including not less than 15 units in any one of the above departments except sociology. Required: Anthropology 185; Economics 119; Geography 125 or 130; History 157A-157B or 158A-158B; Political Science 188, 189, or 192. Additional recommended courses: Anthropology 152, 153, 154, 156, 164, 176, 184; Economics 189, 190, 192, 195; Geography 150; History 155A-155B, 183A-183B; Political Science 176, 191, 192; Sociology 104.

Foreign language. French 1, 2, and 3; or German 1, 2, and 3; or Portuguese 1, 2, and 3. An equivalent level of competence in any other language judged appropriate by the Committee on Africa and the Middle East is acceptable. Competence will be determined by examination.

Special Major

With the A.B. Degree in Applied Arts and Sciences and in Liberal Arts and Sciences

The special major, consisting of three fields, instead of the usual major-minor pattern, offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. Assistance in arranging the special major may be obtained at the Personnel Services Center in the Administration Building. The plan for the major must be cleared with the Evaluations Office for appropriate use of courses, approved by the department chairman in each of the three fields selected, and finally approved by the Dean of Counseling and Testing. Forms are provided for this purpose.

Preparation for the major. A minimum of a year course in each of the three fields selected in the major must be completed in the lower division as foundation for upper division courses.

Major. Thirty-six upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. If two of the three fields selected are from majors offered only in liberal arts and sciences, the special major is governed by the regulations required by that program. If two of the three fields are selected from those not exclusively in the liberal arts and sciences program, the special major is governed by the regulations in applied arts and sciences. The three fields selected are subject to approval by the Dean of Counseling and Testing.

Courses and Curricula

Course Identification

Courses numbered 1 through 99 are lower division courses, intended primarily for freshmen and sophomores; those numbered 100 through 199 are upper division and are intended primarily for juniors and seniors. Those numbered 200 and above are open to graduate students only. For special circumstances under which lower division students may take upper division courses, see "Credit for Upper Division Courses," under General Regulations, above.

The Arabic numeral following the course indicates the number of units the course carries. A Roman numeral I following the units designation indicates that the course is normally offered in the fall, a II that it is normally offered in the spring, and an S that it is given usually in the summer.

Not all the courses listed here are offered every semester or even each year. The frequency is determined by the department in response to anticipated demand and availability of a qualified faculty member to teach a given class. The Class Schedule issued each semester will indicate what classes will be offered by whom and at what time during a given semester, though it too is subject to modification as the need arises, sometimes without prior notice.

The course description frequently states prerequisites: if none is stated, there is none. Equivalents for those stated may be accepted at the discretion of the instructor. A student should not enroll in a class for which he is not prepared.

In general, a graduate level (200-numbered) course is open to classified graduate students only. Unclassified graduate students may enroll in such a course with permission of the instructor and the Dean of Graduate Studies. Under no circumstances may an undergraduate student enroll in a graduate level course.

Common Courses

Certain courses are common to all departments. Hence, to avoid repetition, they are listed and described only here. They are Experimental Topics 99, General College 99 and 199, the Honors Course 166, and Special Study 199.

Experimental Topics 99, is intended to provide departments opportunity for innovation and experimentation. Generally a department offers a course under this rubric to gauge student interest. If there is good response to the specific topic, the course may, with the approval of the University Curriculum Committee, become part of the standard offering of the department. In the absence of such approval it may be offered no more than three years with the same title and content. A particular topic requires the approval of the dean of the school or college concerned. A student may apply no more than nine units in

Experimental Topics to the bachelor's degree and no more than three units to general education requirements. He may use units earned thus to satisfy major and minor requirements only with the approval of the department concerned.

General College 99 or 199 provides credit of up to six units (total) applicable to the bachelor's degree by supervised experience in an educationally significant community or university activity. Tutoring, volunteer work for a social service agency, registering or interviewing voters, and serving on an all-university academic committee are examples of such activities. To be eligible to enroll, a student must have completed 12 units of college work and must have a grade point average of C (2.0) or better.

An interested student should, before registration, seek out a chairman of a faculty committee or a faculty adviser for an on-campus organization which sponsors such activities and obtain his written consent to supervise his work and evaluate it for credit purposes.

Units thus earned may not apply to a major or minor.

Honors courses (166) are intended for students with superior scholastic records and aptitude. An interested student should direct his inquiries to the chairman of the department concerned.

Special Study (199) provides opportunity for individual study of a subject not offered in the regular curriculum. The student does this outside of the classroom. He may earn up to six units of credit through it. He should seek out an instructor under whose supervision he wishes to work, discuss the topic with him, and come to an understanding on the amount of time he is to devote to the topic, the credit he is to earn, and his mode of investigation and report. As with regular courses, the expectation is that the student will devote three hours per week to the subject for each unit of credit.

Aerospace Studies

In the College of Professional Studies

Faculty

Professor: Schwab (Chairman)

Assistant Professors: French, Powers

Offered by the Department

A.F.R.O.T.C. curriculum.

Minor in Aerospace Studies

A.F.R.O.T.C. Curriculum

The department offers a two-year Air Force Reserve Officers' Training Corps program designed to develop officers who have broad understanding and high-growth potential. Cadets participate in dialogues, problem solving, and other planning activities designed to develop leaders and managers. All course work is done on campus with the exception of the Field Training Unit conducted at an active Air Force base and the Flying Instruction Program conducted at a local civilian flying school. Summer training is required of all students, other than veterans, prior to enrollment in on-campus courses.

Upon completion of the program and all requirements for a bachelor's degree, cadets are commissioned second lieutenants in the Air Force and serve a minimum of four years active duty. Graduates who are qualified may apply for pilot or navigator training immediately upon graduation. Other graduates go on active duty in a specialty consistent with their academic major and existing Air Force needs. Graduates may request a delay from entry on active duty to continue their education in graduate programs. Graduates may apply for Air Force sponsored graduate study after entry on active duty.

Applying for the Program

Any student or prospective student may take the Air Force Officer Qualifying Test and the physical examination during the year preceding entry into the program.

When selected, applicants attend a six-weeks field training course at an Air Force base in the summer prior to their last two years of college. No further summer training is required. (Note: Veterans who are granted credit for prior military service may enter the program as juniors and attend a four-week field training between their junior and senior year.) Field training emphasizes military orientation for the junior officer and aircraft and aircrew familiarization. Cadets receive physical training and participate in competitive sports. They are trained in the use of weapons, drill and ceremonies, and observe selected Air Force units perform everyday operations of the Air Force.

Flight Instruction and Pay

The Flight Instruction Program (FIP) is offered to qualified senior cadets who have elected to enter pilot training when reporting for active duty. The cost of the flight training is paid by the Air Force. Instruction is divided between class work taught on the campus and flying training conducted by a civilian contractor in the area.

Cadet retainer pay of \$50 per month is given for twenty months of the program. Cadets receive approximately \$135 during the Field Training Unit and are reimbursed for the cost of travel to and from the unit.

Minor

The minor consists of 15 units in aerospace studies.

131A-131B. Growth and Development of Aerospace Power (3-3)

Three lectures and one hour of leadership laboratory.

Semester I: The nature of war; development of air power; and Air Force doctrine.

Semester II: Astronautics and space operations; United States space programs.

133. Field Training Unit (3)

Required for advanced cadets; military orientation and flight familiarization. Credit granted through the Extension Division on basis of individual student application with approval of the Aerospace Studies Department Chairman.

141A-141B. The Professional Officer (3-3)

Three lectures and one hour of leadership laboratory.

Prerequisites: Air Science 131A and 131B.

Semester I: The professional officer; the Military Justice System; leadership theory and practice.

Semester II: Management principles and functions; problem solving; briefing for commissioned service.

151. Flight Instruction (2) I

Available only to qualified senior AFROTC students.

Ground school is provided by the Aerospace Studies Department. Flight instruction is given by a contracted civilian flying school. Students may qualify for the FAA private pilot certificate.

Afro-American Studies

*Administered under the direction of the Dean of
Undergraduate Studies*

For a description of the requirements for the A.B. in liberal arts and sciences with an Afro-American Studies major, see Interdisciplinary and Preprofessional Programs, above.

4. Urban Law (3) I, II

Legal problems of residents of urban societies, especially the urban poor. Social burdens, including juvenile and criminal processes. Social benefits and welfare. Private law, including employment, rental and purchase agreements, debt and consumer problems.

Anthropology

In the College of Arts and Letters

Faculty

Professors: Anderson, A. J., Ezell, Goldkind, Rogers

Associate Professors: Shutler (Chairman), Whitney, D., Watson

Assistant Professors: Greenfeld, Himes, Jones, R., Leach, Lippold, Pendleton, Rohrl, Sharpe, Sonek, Staniford, Voorhies, Wagner, Young, J.

Offered by the Department

Master of Arts degree in anthropology.

Major in anthropology with the A.B. degree in liberal arts and sciences.

Minor in anthropology.

Major

With the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. Anthropology 1A, 1B, and 1C. (9 units.)

Major. A minimum of 24 upper division units to include three units selected from Anthropology 102 or Biology 158; three units selected from 103, 170 or 174; six units selected from 152, 162, 171, 175, 177, or 178; six units selected from 150, 154, 156, 165, or 167; three units from 120, 122, or General Language 196; three units of Anthropology 197. (Anthropology 197 should be taken during senior year; 100A or 100B may not be counted in the upper division requirements for graduation.)

Minor

The minor consists of 15 units in anthropology, nine of which must be in upper division courses (except Anthropology 100A-100B).

1A. Introduction to Physical Anthropology (3) I, II

Man's place in nature; fossil evidences of early man; theories of human development; racial variability. Not open to students with credit in Anthropology 100A.

1B. Introduction to Archaeology (3) I, II

May be taken before Anthropology 1A.

Prehistoric cultures of Europe and the Middle East; archaeological techniques; basic inventions and cultural innovations; language and culture. Not open to students with credit in Anthropology 100A.

1C. Introduction to Ethnology (3) I, II

May be taken before Anthropology 1A or 1B.

Man's relationship to his environment; types of preliterate society; systems of family organization, government, and religion. Not open to students with credit in Anthropology 100B.

4. Archaeological Field Methods (3) I, II

May be taken before Anthropology 1A or 1B.

One lecture and six hours of laboratory.

Application of the methods and techniques of archeology through excavation, laboratory analysis, and preparation of reports. (Formerly numbered Anthropology 173A.)

100A-100B. Principles of Anthropology (3-3)

Anthropology 100A: Human evolution as a biocultural process from the perspectives of human paleontology and prehistory. Anthropology 100B: Systems of cultural cognition, family organization, government, and religion in non-Western societies, comparison with analogous Western institutions. Anthropology 100A is not open to students with credit in Anthropology 1A or 1B. Anthropology 100B is

not open to students with credit in 1C. Anthropology 100A-100B may not be used to fulfill minimal upper division requirements in the anthropology major or minor or the special major.

101. Human Paleontology (3) II

Prerequisite: Anthropology 1A or 100A.

Comparative anatomy of fossil man and other primates; evolutionary relationships and cultural associations.

102. Physical Anthropology (3) I

Prerequisite: Anthropology 1A or 100A.

Primate comparative anatomy and human paleontology. Physical measurement of the living subject and skeletal specimens. The statistical treatment of data in physical anthropology. Applications of physical anthropology in industry and medico-legal problems.

103. Principles of Archaeology (3) II

Prerequisite: Anthropology 1B or 100B.

The historic background and basic techniques of archaeological excavation. Methods of site excavation with particular emphasis on California and the Southwest. Principles of culture dynamics utilized in archaeological interpretation.

115. Primatology (3) I

Prerequisite: Anthropology 1A or 100A.

Description, taxonomy, and comparative anatomy of the anthropoid apes, monkeys, and lesser primates. Primate behavior as a basis for the reconstruction of prehistoric human behavior. Extensive use of the primate collections of the San Diego Zoo.

120. Introduction to Anthropological Linguistics (3) I

Prerequisite: Anthropology 1A or 1B or 1C or 100A or 100B.

The structural nature of language. How languages differ, change, and influence each other. The language families of the world. The significance of language for human social life in a variety of cultures.

122. Language in Culture (3) II

The full range of anthropological interests in the study of language, and of linguistic interests in the socio-cultural context of language. Designed for students in language and other departments as well as in anthropology.

124. Descriptive Linguistics (3) II

Prerequisite: Anthropology 120.

Principles and techniques of descriptive linguistics. Problems and methods in the phonetic transcription and analysis of unwritten, non-Indo-European languages. Emphasis on articulatory phonetics, field techniques, and work with informants.

148. Cultures of Europe (3) I, II

Prerequisite: Anthropology 1C or 100B.

The study of society and culture in contemporary Europe, utilizing current ethnographic materials. The relationship of such studies to European culture growth and to the definition of European sociocultural regions.

149. Kinship and Social Organization (3) I

Prerequisite: Anthropology 1C or 100B.

Comparison of kinship systems and the structure of social relationships throughout the world. The methodological orientations and theories relating to social organization with emphasis on non-Western societies.

150. Ethnological Field Methods (3) I

Prerequisite: Anthropology 152.

The problems and techniques of obtaining data in ethnological and social anthropological field work; preparation, gaining and maintaining rapport, evaluating data, participant-observation. A review of literature followed by work with informants.

151S. Ethnographic Field Research Project (6) S

A six-week course. No other course may be taken concurrently.

Supervised collection of ethnographic data in the field and in a subculture or culture that is foreign to the students.

152. World Ethnography (3) I, II

Prerequisite: Anthropology 1C or 100B.

The cultural patterns of representative aboriginal peoples. Industries, arts, social organization and supernaturalism considered with a view to environmental adjustment, historical development and functional interrelation. Ethnological theories reviewed and applied in interpreting illustrative aboriginal societies.

153. Primitive Religion (3) II

Prerequisite: Anthropology 1C or 100B.

Beliefs and ritual of primitive man. Magic and religion. Forms of animism and polytheism. Primitive mentality and the supernatural.

154. Social Anthropology (3) II

Prerequisite: Anthropology 152.

The development of social anthropology as a distinct subfield of cultural anthropology. Readings and analysis of functionalism as theory and methodology in the explanation of social and cultural processes.

155. Peasant Society and Culture (3) II

Prerequisite: Anthropology 1C or 100B.

The social organization and culture of present-day small agricultural communities with emphasis on changes brought about by modernization.

156. Cultural Change and Processes (3) I

Prerequisite: Anthropology 1C or 100B.

The individual and the culture pattern: The acquisition of culture, innovation and invention, direction of cultural development, diffusion and interpenetration of cultures. Illustrations from contemporary and historic peoples: Indians of the Southwest, Eskimos, aboriginal groups of Australia, Africa and Oceania.

157. Mesoamerican Ethnohistory (3) II

Prerequisite: Anthropology 1B or 1C or 100B.

Aboriginal pre- and post-Conquest civilization of Mexico with emphasis on the developments, changes, and characteristics of aboriginal, mestizo, and creole society in Colonial Mesoamerica; stress on appropriate texts and codices.

158. Economic Anthropology (3) II

Prerequisite: Anthropology 1C.

Social relationships and cultural values inherent in the economies of primitive and peasant societies. Cross-cultural comparisons made of various means by which goods and services are acquired and distributed in non-Western, non-market-industrial societies.

159. Cultural Ecology (3) I

Prerequisite: Anthropology 1C.

Examination and comparison of the relationships which exist between the natural environment and the socio-cultural processes in non-literate and peasant communities.

160. Primitive Technology (3) I

Prerequisite: Nine units of anthropology.

Techniques of tool manufacture, subsistence, shelter, clothing and arts and crafts of non-industrial peoples.

161. The California Indians (3) I

Prerequisite: Anthropology 1C.

Native California Indian cultures with stress on the Indian groups of Southern California. The industries, arts, social organization, folklore and religion will be considered as revealed through the study of living peoples and archaeological evidences.

162. Cultures of South America (3) II

Prerequisite: Anthropology 1B or 1C or 100B.

Indian cultures in terms of origins, migration, relation to habitat, cultural variation and relevance to contemporary trends. Development of Inca civilization, the effects of the Spanish conquest and its aftermath.

163. Contemporary Latin American Cultures (3) I

Prerequisite: Anthropology 1C.

A social anthropological approach to the structure and dynamics of contemporary conditions and problems, especially as revealed in studies of particular communities. Included are such topics as ethnic and regional differences within national societies, population change, social consequences of economic changes, changing stratification systems, values, institutional change.

164. Urban Anthropology (3) I

Prerequisite: Anthropology 1C or 100B.

Cultural roles of urban centers and processes of urbanization in non-Western, non-industrial, societies of past and present. Urban influence on traditional peasant and primitive peoples of Africa, Asia, and Latin America.

165. Culture and Personality (3) I, II

Prerequisite: Anthropology 1C or 100B.

The relationship of individual personality to culture in a variety of cultures. A consideration of various theories and studies in the social and personality sciences.

167. History of Anthropological Theory (3) II

Prerequisite: Anthropology 1A or 1B or 1C or 100A or 100B.

The development of theories which lie behind the modern sciences of ethnology and archaeology. Applications of the theory of culture to field methods and interpretation of findings.

168. Evaluative Procedures in Culture and Personality (3) II

Prerequisite: Anthropology 165.

Methods of eliciting and evaluating cross-cultural information about patterns of behavior. Such field methods as the interview and participant observation will be reviewed and evaluated.

169-S. Backgrounds of Mexican Civilization (3) S

Mexico's archaeological past and its bearing on historic and recent peoples and cultures. Conflicts between Aztec and Mayan cultures and western civilization. The relationship of Mexican civilization to other Latin American cultures.

170. Archaeology of North America (3) I

Prerequisite: Anthropology 1B or 100A.

Origin of the American Indian and survey of the main prehistoric cultures of the North American continent.

171. Ethnology of North America (3) II

Prerequisite: Anthropology 1C or 100B.

Native cultures and the role of environmental and historical factors in North America.

172A. Southwestern Prehistory (3) I

Prerequisite: Anthropology 1B or 100A.

Prehistoric Indian cultures in the American Southwest; ecological adaptations and outside cultural influences.

172B. Southwestern Ethnology (3) II

Prerequisite: Anthropology 1C or 100B.

Indian cultures of the American Southwest in historic times; ecological adaptations, responses to white contact, adaptations to modern American life.

173. Advanced Archaeological Field Methods (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Anthropology 4.

Advanced projects in excavation and stabilization of ruins, archaeological surveys, laboratory analysis and preparation of reports. (Formerly numbered Anthropology 173B.)

174. Prehistoric Archaeology of Europe (3) II

Prerequisites: Anthropology 1A and 1B, or 100A and 100B.

The Stone Age, Bronze Age, and Iron Age cultures of Europe, North Africa, and the Middle East. Industries, habitations, and art of peoples antecedent to recorded history. Methods of investigation used in reconstructing prehistoric civilizations.

175. Cultures of Southeast Asia (3) II

Prerequisite: Anthropology 1C or 100B.

Prehistory, races and cultures of Indonesia, Philippines and nearby mainland Southeast Asia. Includes both primitive and peasant societies and reviews them with respect to environmental, historical and social factors.

176. Early Near and Middle Eastern Civilizations (3) I

Prerequisite: Anthropology 1B.

Anthropological foundations of historic primary civilizations of the Near and Middle East in their early phases of development as revealed by archaeological and other sources.

177. Cultures of East Asia (3) I

Prerequisite: Anthropology 1C or 100B.

Peasant and primitive peoples of mainland and insular East Asia. A comparison of cultural traditions, social organization, and social trends in China, Japan, Okinawa, and Korea.

178. Cultures of Oceania (3) II

Prerequisites: Anthropology 1C or 100B.

The aboriginal cultures and people of Melanesia, Australia, Micronesia, and Polynesia in pre-historic, historic, and modern times.

179. Applied Anthropology (3) II

Prerequisites: Anthropology 154 and 156, and consent of instructor.

The application of anthropological concepts to the solution of practical problems of culture change in industry, corporate organization and community development.

180. Preclassic Cultures of Mesoamerica (3) II

Prerequisite: Anthropology 1B or 100B.

The development of civilization in Pre-Columbian Mexico and Central America antecedent to the Tolteca, Classic Maya, and related cultures.

181. Classic Pre-Columbian Civilizations of Middle America (3) I

Prerequisite: Anthropology 1B or 100A.

Aboriginal Mexican and Central American civilizations through the Age of Exploration and Conquest. Aztecs, Mixtecs, Zapotecs, Mayas, and related cultures.

182. Post-Conquest Cultures of Middle America (3) II

Prerequisite: Anthropology 1C or 100B.

Aboriginal and mixed cultures of Mexico and Central America in Colonial and recent epochs. Aftermath of Conquest and exploitation.

183. Archaic Hellenic, Aegean, and Italian Cultures (3) II

Prerequisite: Anthropology 1B or 100A.

Anthropological foundations of primary civilizations of Greece, the Aegean, and Italy, in their prehistoric phases of development as revealed by archaeological and other sources.

184. Archaeology of Sub-Saharan Africa (3) I

Prerequisites: Anthropology 1A and 1B or 100A.

A chronological review of the major archaeological cultures in Sub-Saharan Africa. The archaeological evidence for the evolution of man and his culture in Africa will be presented in a conjunctive approach.

185. Cultures of Sub-Saharan Africa (3) I

Prerequisite: Anthropology 1C or 100B.

Indigenous peoples and cultures of Africa south of the Sahara. A comparison of cultural traditions, social organization, and modern trends in newly emergent nations of the area.

186. Cultures of India (3) II

Prerequisite: Anthropology 1C or 100B.

Indigenous peoples and cultures of India and contiguous areas of South Asia. The development of cultural traditions; social organization; and modern trends.

187. Political Anthropology (3) II

Prerequisite: Anthropology 1C or 100B.

Political processes, institutions, and ideologies in primitive and peasant societies.

188A-188B. Archaeological Laboratory Methods (3-3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Anthropology 173. Anthropology 188A is a prerequisite to 188B.

Semester I: Application of palynology, paleontology and technologies. Semester II: Practical applications of materials from 188A. Individual laboratory research project required.

189. Topics in Arctic Archaeology (3) I

Prerequisites: Anthropology 1B and 103.

Discussion of selected areas, periods or problems in the context of broad considerations of prehistoric cultural development and human ecology throughout the Arctic and subarctic regions of North America.

190. Archaeology of East Asia (3) II

Prerequisite: Anthropology 1B.

A chronological review of prehistoric cultural development and human ecology in East Asia.

197. Investigation and Report (3) I, II

Prerequisite: Consent of instructor.

Analysis of special topics in anthropology and preparation of reports on the results of the study.

200. Seminar (3)

201. Seminar in Physical Anthropology (3)

202. Seminar in Archaeology (3)

203. Seminar in Ethnology (3)

204. Seminar in Linguistics (3)

220. Seminar in Regional Anthropology (3)

221. Seminar in Topical Anthropology (3)

222. Historical Linguistics (3) I

233. Social Structure (3)

255. Culture and Society in the Nahua Area (3)

- 256. Cultures and Societies in Southern Mesoamerica and Central America (3)**
- 257. Classical Nahuatl (3) I**
- 258. Ethnoscience (3)**
- 267. Contemporary Theory in Cultural Anthropology (3)**
- 286. South Asian Society (3) I, II**
- 297. Research (3)**
- 298. Special Study (1–3)**
- 299. Thesis (3)**

Art

In the College of Professional Studies

For purposes of exhibition and reference, the department reserves the right to retain for a limited period some of each student's work produced in class.

Faculty

Emeritus: Andrews, Jackson, Ruocco

Professors: Bigelow, Dirks (Chairman), Fisch, Hopkins, Lingren, Longenecker, Swiggett, Tanzer, Wallace

Associate Professors: Baker, K., Baxter, R., Berg, Covington, Higgins, Miller, A., Rogers, J.

Assistant Professors: Austin, Bowne, Childress, Frick, Groover, Hodge, Hunter, L., Moaney, Orth, Papworth, Peterson, T., Ray

Lecturers: Fabo, Haxton, Smith, C. L., Smith, Larry

Offered by the Department

Master of Arts degree in art.

Major in art with the A.B. degree in liberal arts and sciences.

Major in art with the A.B. degree in applied arts and sciences.

Minor in art.

Teaching major in art, with specialization in both elementary and secondary teaching. Teaching majors in fine arts, fine arts and humanities, and fine arts and social sciences, requiring a concentration in art, are also offered. See "School of Education" in the catalog section Professional Schools: Courses and Curricula.

Teaching minor in art, with specialization in secondary teaching.

Major

With the A.B. Degree in Liberal Arts and Sciences

A major in art may be planned with an emphasis in studio arts or art history.

Emphasis in Studio Arts

Preparation for the major. Art 1A, 1B, 2A, 2B, 5, 15A, 16A, 17A, 50A, 50B; Philosophy 1A. (31 units.)

Major. A minimum of 24 upper division units to include Art 100A, 115A, 116A, 156A, 190; Philosophy 141; and six units selected with the approval of the adviser from: Art 106A-106B, 112A-112B, 116B, 117A-117B, 117C, 120A-120B, 153, 154, 155A, 155B, and 99.

Emphasis in Art History

Preparation for the major. Anthropology 1B; Art 50A-50B, 52A-52B; French or German, or a reading knowledge of either language (13 units).

Major. A minimum of 24 upper division units to include Art 151, 153, 154, 155A, 155B, 156A, and 157 or 158; and three units of electives selected with the approval of the department from anthropology, art, history or philosophy.

With the A.B. Degree in Applied Arts and Sciences

The major in art may be planned with an emphasis on art education, crafts, environmental design, graphic communication, painting and printmaking or sculpture. The programs in environmental design and in graphic communication have a preprofessional orientation supplemented by a strong liberal arts background. Environmental design can lead to interior design or city planning. Graphic communication prepares the student for the areas of environmental graphics, art direc-

tion, visual design for the contemporary media of advertising, fashion illustration or editorial illustration. The areas of painting and printmaking, and sculpture prepare students for professional attitudes toward the fine arts and the continuance of their educational experience in graduate schools with the goal of teaching at institutions of higher learning. The preprofessional program in art education prepares the student for teaching in either elementary or secondary schools. The crafts program can be developed to specialize in ceramics, furniture or industrial design, jewelry, textile design and weaving.

A minor is not required with this major. However, in graphic communication an English minor is recommended.

Emphasis on Crafts

Preparation for the major. Art 1A, 1B, 2A, 2B, 50A, 50B, 61, and six units of art electives. (25 units.)

Major. A minimum of 24 upper division units in art to include nine units selected from three of the following areas: Fiber, metal, clay, wood; three units of extended work in one of the selected areas; six units of art electives; and six units of art history. Twelve units of advanced work in one area are strongly recommended.

Emphasis on Graphic Communication

Preparation for the major. Art 1A, 1B, 2A, 2B, 14A, 50A, 50B; and six units selected from Art 7, 14B, 15A, 16A, 18A. (25 units.)

Major. A minimum of 24 upper division units in art to include Art 114A, 114B-114C, 156A; three additional units of art history; and nine units selected from Art 107, 114D, 191A, 191B, 193A-193B, 194A-194B, 196A-196B, and 197.

Emphasis on Environmental Design

Preparation for the major. Art 1A, 1B, 2A, 2B, 8, 13, 33A, 33B, 50A, 50B, 95A. (31 units.) Recommended: Art 14A, 17A, 18A, 19A, 61, 80A.

Major. A minimum of 24 upper division units in art to include Art 156A; three additional units of art history; and 18 units selected from 135A-135B, 156B, 195A, 195B, 195C, 195D; and three units of electives.

Emphasis on Painting and Printmaking

Preparation for the major. Art 1A, 1B, 2A, 2B, 50A, 50B; and nine units selected from Art 15A-15B, 16A, 16B. (25 units.)

Major. A minimum of 24 upper division units in art to include Art 156A; three additional units of art history; and 18 units selected in consultation with the adviser from Art 100A, 100B, 106A-106B, 112A-112B, 115A-115B-115C-115D, 116A-116B, 116C-116D, 118A-118B, 120A-120B, 126A, 126B, 136A, 136B.

Emphasis on Sculpture

Preparation for the major. Art 1A, 1B, 2A, 2B, 17A-17B, 50A, 50B; and three units selected from Art 13, 15A, 16A, 19A, 61, 70, 80A. (25 units.)

Major. A minimum of 24 upper division units to include Art 117A or 127, 117B, 117C, 156A, 198; three additional units of art history; and six units selected from 100A, 113A, 115A, 116A, 170A.

Emphasis on Art Education

This emphasis is available only to students who have been admitted to and continue in Teacher Education to time of graduation.

Elementary Teaching

Preparation for the major. Art 1A, 1B, 2A, 2B, 50A, 50B, 61; and six units of art electives. (25 units.)

Major. A minimum of 24 upper division units in art to include 15 units selected from one emphasis area in consultation with the art education adviser; Art 105 or 175; 156A, and three units of art history.

Secondary Teaching

Preparation for the major. Art 1A, 1B, 2A, 2B, 50A, 50B, 61; and six units of electives. (25 units.)

Major. A minimum of 24 upper division units in art to include Art 156A; three units of art history; and eighteen units from Group I or Group II in consultation with the art education adviser.

Group I. Fifteen units of one major emphasis area, including Art 175 and three units of one other major emphasis area. (18 units.)

Group II. Six units of drawing and painting; six units of crafts or sculpture; and three units of graphic communication or environmental design; and Art 175. (18 units.)

For the Standard Teaching Credential

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Elementary Teaching

Requirements are the same as the requirements for the degree with an emphasis in art education for elementary teaching as outlined above.

Specialization in Secondary Teaching

Requirements are the same as the requirements for the degree with an emphasis in art education for secondary teaching as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six units of upper division or graduate art electives including Art 222.

Minor

The minor for the bachelor's degree consists of 15 units in art, six of which must be upper division.

The teaching minor in art for secondary teaching consists of the following: In the lower division, Art 1A, 1B, 2A, 2B, 50A, 50B; and in the upper division twelve units in one emphasis area including Art 156A. (28 units.)

1A. Drawing and Composition (3) I, II

Six hours.

The ordering of two-dimensional space through drawing.

1B. Drawing and Composition (3) I, II

Six hours. Prerequisite: Art 1A.

Drawing of mechanical and natural forms by the use of line and value. Emphasis on proportion and structure. Some quick sketching, gesture and contour drawing.

2A. Design and Aesthetics (3) I, II

Six hours.

Fundamentals of space and color design. Basic course used as a prerequisite for advanced work. Not open to students with credit in Art 6A or 9.

2B. Design and Aesthetics (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Art 2A.

Continuation of Art 2A. Original work in creative design including projects in three dimensions. Not open to students with credit in Art 6B or 10.

5. Art Orientation (3) I

An illustrated lecture course dealing with aesthetic meaning and a survey of the history of western art. Designed to increase the understanding and appreciation of art.

7. Visual Design (3) I, II

Six hours.

Prerequisites: Art 2B and 14A.

The organizational concepts of design applied to environmental graphics and merchandising display.

8. The House and Its Environment (3) I, II

Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment.

13. Furniture Design (3) I, II

Six hours.

Prerequisite: Art 2A. Recommended: Industrial Arts 5.

Study of the principles of design through the making of furniture.

14A. Beginning Graphic Communication (3) I, II

Six hours.

Prerequisites: Art 1A and 2B.

Creative projects exploring the inter-relation of fundamental art principles and design using phonetic symbols and typography.

14B. Intermediate Graphic Communication (3) I, II

Six hours.

Prerequisite: Art 14A.

Typographic and design concepts applied to layout for contemporary media.

15A-15B. Life Drawing (3-3) I, II

Six hours.

Prerequisite: Art 1B. Art 15A is prerequisite to 15B.

Drawing from the nude model.

16A. Painting (3) I, II

Six hours.

Prerequisite: Art 1B.

Pictorial composition and techniques of painting.

16B. Oil Painting (3) I, II

Six hours.

Prerequisite: Art 16A.

Landscape and more advanced composition in color.

17A-17B. Sculpture (3-3) I, II

Six hours.

Prerequisite: Art 2B. Recommended: Industrial Arts 5. Art 17A is prerequisite to 17B.

Three dimensional design using varied materials.

18A–18B. Watercolor Painting (3–3) I, II

Six hours.

Prerequisites: Art 1A and 1B. Art 18A is prerequisite to 18B.

Composition of still-life and landscape in watercolor.

19A. Ceramics (3) I, II

Six hours.

Prerequisite: Art 2A.

Design and construction of hand-built ceramic forms.

19B. Ceramics (3) I, II

Six hours.

Prerequisite: Art 19A.

Continuation of Art 19A. Introduction to use of the potter's wheel and application of glaze for surface enrichment.

27. Life Modeling—Sculpture (3) I, II

Prerequisite: Art 17A.

Creative experimentation with sculptural forms from the human figure.

33A–33B. Visual Presentation (3–3) I, II

Six hours.

Prerequisites: Art 1B, 2A; 33A is prerequisite to 33B, and Art 18A recommended.

Methods, materials, and tools of the professional environmental designer stressing art principles. (Formerly numbered Art 133A and 133B.)

50A. Appreciation and History of Art (2) I, II

Art development in painting, sculpture, architecture, and handicrafts from the dawn of art to the Renaissance. Illustrated.

50B. Appreciation and History of Art (2) I, II

The period from the Renaissance through the modern school treated in the same manner as in 50A.

52A. Survey of Japanese Art (3) II

A study of the arts of Japan.

52B. Survey of Chinese Art (3) I

A study of the arts of China.

61. Design in Crafts (3) I, II

Six hours.

Prerequisite: Art 2A.

Visual and structural form in crafts.

70. Beginning Jewelry Design (3) I, II

Six hours.

Prerequisites: Art 2B and 61.

Design and fashioning of jewelry.

80A–80B. Weaving (3–3) I, II

Six hours.

Prerequisite: Art 61. Art 80A is prerequisite to 80B.

Structure and design of woven fabrics.

94A–94B. Fashion Imagery (3–3) I, II

Six hours.

Prerequisite: Art 2A. Art 94A is prerequisite to 94B.

Design of original contemporary costumes and the drawing of the fashion image.

95A. The Contemporary House (3) I, II

Six hours.

Prerequisites: Art 1A, 2A, and 8.

Elementary problems in neighborhood planning, house design, interior design and landscaping.

95B. General Interior Design Theory (3) I, II

Six hours.

Prerequisite: Art 95A.

Concepts of space in architecture, landscape and interior design. Relationship of furniture, fabrics, light, color and art.

100A. Advanced Drawing (3) I, II

Six hours.

Prerequisites: Art 15A and 16A.

Drawing with color wherein an objective attitude is taken toward the qualitative aspect of visual subject matter. Objects are studied and represented as visual stimuli rather than as stereotypes.

100B. Advanced Drawing (3) I, II

Six hours.

Prerequisite: Art 100A.

Drawing with color wherein objects are represented in such a manner as to include kinaesthetic responses. Aesthetic organization of materials is stressed.

105. Classroom Environmental Design (3) I, II

Six hours.

Development of an understanding for aesthetic environmental concepts as related to the classroom.

106A-106B. Printmaking (3-3) I, II

Six hours.

Prerequisite: Art 15A; 106A is prerequisite to 106B. Woodcut, wood engraving, gesso cut and linoleum.

107. Contemporary Environmental Graphics (3) I, II

Six hours.

Prerequisites: Arts 2A. Art 2B and 14A are recommended.

Study of creative design for contemporary architectural and motivational graphics.

108. The House and Its Environment (3) I, II

Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment, its simplicities and complexities. Not open to students with credit in Art 8.

110. Advanced Crafts in the Elementary Schools (3) I, II

Six hours.

Prerequisite: Art 2A.

An advanced design-craft course in which the activities, materials and tools employed are appropriate for the elementary grades. Not open to students with credit in Art 61.

111A-111B. Industrial Design (3-3) I, II

Six hours.

Prerequisites: Art 1A and 2B. Art 111A is prerequisite to 111B.

Design of objects for manufacture with reference to their use, materials, and in accordance with factory practices and machine techniques. Practice in the techniques of presentation, working drawings, rendering in perspective and scale models.

112A–112B. Design and Composition (3–3) I, II

Six hours.

Prerequisites: Art 1A, 1B, 2B, and 16A. Art 112A is prerequisite to 112B.

Structure in picture making. The controlled use of line, value, color, and texture to organize the effect of depth, movement, volume, etc., in the recognizable image. Oil technique.

113A–113B. Advanced Furniture Design (3–3) I, II

Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.

Prerequisite: Art 13. Recommended: Industrial Arts 5. Art 113A is prerequisite to 113B.

Principles of design through the making of furniture.

113C–113D. Advanced Furniture Design (3–3) I, II

Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.

Prerequisite: Art 113B. Art 113C is prerequisite to 113D.

Advanced individual design; exploration of materials, process and function.

114A. Graphic Communication (3) I, II

Six hours.

Prerequisite: Art 14B.

Investigation of design concepts relating to advertising.

114B–114C. Advanced Graphic Communication (3–3) I, II

Six hours.

Prerequisites: Art 114A. Art 114B is prerequisite to 114C.

The relation of art structure and the aspects of visual communication.

114D. Problems in Graphic Communication (3) I, II

Six hours.

Prerequisite: Art 114C.

Refinement of personally developed design concepts for visual communication with emphasis on individually directed solutions. The development of a portfolio of professional quality. Maximum of six units selected from 114 series applicable on a master's degree.

115A–115B–115C–115D. Life Drawing and Painting (3–3–3–3) I, II

Six hours.

Prerequisites: Art 15A and 16A. Art 115A is prerequisite to 115B; 115B to 115C; 115C to 115D.

Drawing and painting from nude and costumed models.

116A–116B. Advanced Painting (3–3) I, II

Six hours.

Prerequisite: Art 16A or 16B. Art 116A is prerequisite to 116B.

Pictorial composition.

116C–116D. Advanced Painting (3–3) I, II

Six hours.

Prerequisite: Art 116B. Art 116C is prerequisite to 116D.

The influence of art media and picture plane on aesthetic organization in representational painting.

117A–117B. Advanced Sculpture (3–3) I, II

Six hours.

Prerequisites: Art 2B and 17A or 17B. Art 117A is prerequisite to 117B.

Creative design in diverse materials. Maximum of six units selected from 117 series applicable on a master's degree.

117C. Advanced Sculpture (3) I, II

Six hours.

Prerequisite: Art 117B.

The influence of art media and tools on aesthetic organization in sculpture in relief and in the round.

118A–118B. Advanced Watercolor Painting (3–3) I, II

Six hours.

Prerequisite: Art 18B. Art 118A is prerequisite to 118B.

Composition of still life and landscape in watercolor.

119A. Ceramics (3) I, II

Six hours.

Prerequisite: Art 19B.

Basic methods of forming, decorating, glazing and firing pottery forms with emphasis on the use of the potter's wheel.

119B. Ceramics (3) I, II

Six hours.

Prerequisite: Art 119A.

Continuation of Art 119A. Further development of knowledge, skills and philosophy of ceramics through individual creative projects.

119C. Ceramics (3) I, II

Six hours.

Prerequisite: Art 119B.

Continuation of Art 119B with advanced creative projects.

119D. Advanced Ceramics (3) I, II

Six hours.

Prerequisites: Art 119C.

Study of ceramic design through creative projects of clay forms.

120A–120B. Advanced Design (3–3) I, II

Six hours.

Prerequisites: Art 1B and 2B. Art 120A is prerequisite to 120B.

Advanced work in pure design, two and three dimensional. Re-examination of color theory and design principles.

126A. Intaglio Printmaking (3) I, II

Six hours.

Prerequisites: Art 2A and 15A. Art 100A and 115A are recommended.

Creative intaglio—etching, drypoint, aquatint, engraving and variations. Emphasis on fine print quality and technical development.

126B. Intaglio Printmaking (3) I, II

Six hours.

Prerequisite: Art 126A.

Advanced creative intaglio. Emphasis on fine print quality and the color process.

127. Advanced Figurative Sculpture (3) I, II

Six hours.

Prerequisites: Art 17A and 27.

Figurative study with emphasis on individual exploration.

129A–129B. History of Ceramics (3–3) I, II

Prerequisite: Art 129A is prerequisite to 129B.

Philosophical approaches to design of pottery and techniques as related to contemporary ceramics. Field trips.

135A–135B–135C. History and Theory of Environmental Design (3–3–3) I, II

Prerequisites: Art 50A, 50B; Art 135A is prerequisite to 135B and 135B to 135C.

Environmental arts. Semester I: From earliest times to the 15th Century. Semester II: 15th to the 19th Century. Semester III: 19th and 20th Centuries.

136A. Lithography Printmaking (3) I, II

Six hours.

Prerequisites: Art 2A, 15A. Art 100A and 115A are recommended.

Creative lithography—stone and plate planographic process. Emphasis upon fine print quality and technical development.

136B. Lithography Printmaking (3)

Six hours.

Prerequisite: Art 136A.

Advanced creative lithography—emphasis upon the color process and fine print quality.

151. Art of Middle America (3) Irregular

Middle American art from earliest time to the present (Formerly numbered 51.)

152A. The Art of India and Southeast Asia (3) Irregular

Prerequisites: Art 50A and 50B.

History of the art, architecture, and sculpture of India and Southeast Asia.

152B. The Art of Persia and the Islamic World (3) Irregular

Prerequisites: Art 50A and 50B.

History of the art, architecture, sculpture and minor arts of Persia and the Islamic World.

153. Ancient Art (3) I

Prerequisites: Art 50A and 50B.

Development of painting, sculpture, architecture and crafts from prehistoric times to the fall of Rome.

154. Medieval Art (3) II

Prerequisites: Art 50A and 50B.

Development of painting, sculpture and architecture from the time of Constantine through the Gothic period.

155A. Renaissance Art (3) I

Prerequisites: Art 50A and 50B.

Architecture, sculpture and painting of the Renaissance.

155B. Baroque and Rococo Art (3) II

Prerequisite: Art 155A.

Architecture, sculpture and painting of the Baroque and Rococo periods.

156A. History of Modern Art (3) I, II

Prerequisites: Art 50A and 50B.

Development of painting, sculpture, and architecture from the French Revolution to the 20th century.

156B. Contemporary Art (3) Irregular

Prerequisite: Art 156A

Current movements in sculpture, painting, graphics, and architecture.

157. The History of American Art (3) Irregular

Prerequisites: Art 50A and 50B.

Development of painting, sculpture, and architecture from Colonial times to the present.

158. Art of Primitive Peoples (3) Irregular

Prerequisites: Art 50A and 50B.

Arts of primitive peoples of Africa, South Seas, and the North American Indians and their influence upon the art of the twentieth century.

160. The History of Architecture (3) Irregular

Prerequisites: Art 50A and 50B, or Art 5.

Architecture from primitive times to the present.

161A-161B-161C-161D. Design in Enamels (3-3-3-3) I, II

Six hours.

Prerequisite: Art 61; Art 161A is prerequisite to 161B, 161B to 161C, 161C to 161D.

Design and production of vitreous enamels. Maximum credit six units applicable on a master's degree.

164. History of Costume (3) Irregular

Prerequisites: Art 50A and 50B.

The historic origins of costume traced through aesthetic, social and political influences dominant during each period.

170A. Beginning Jewelry Design (3) I, II

Six hours.

Prerequisites: Art 2B and 61.

Design and fashioning of jewelry. Not open to students with credit in Art 70.

170B. Jewelry and Metalwork (3) I, II

Six hours.

Prerequisites: Art 70 or 170A.

Design and production of jewelry and hollow ware.

170C-170D. Jewelry and Metalwork (3-3) I, II

Six hours.

Prerequisite: Art 170C is prerequisite to 170D.

Advanced individual problems in jewelry.

175. Problems in Art for Teachers (3) I, II

Six hours.

Art principles and materials as related to teaching situations.

180A-180B. Advanced Weaving (3-3) I, II

Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.

Prerequisites: Art 80A and 80B. Art 180A is prerequisite to 180B.

Advanced problems in fabric design and weave construction including tapestry and rug weaving techniques.

180C-180D. Advanced Weaving (3-3) I, II

Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.

Prerequisite: Art 180B. Art 180C is prerequisite to 180D.

Advanced individual problems in weaving.

181. Non Woven Textile Construction (3) I, II

Six hours.

Prerequisites: Art 2B and 61.

Textile structures with an emphasis on non loom techniques.

190. Principles and Elements of Visual Aesthetic Organization (3)

Three hours.

Prerequisites: Senior standing and Art 5.

Visual aesthetic materials and the psychological principles involved in aesthetic organization.

191A. Gallery Exhibition Design (3) I, II

Six hours.

Prerequisite: 14 units of art.

Fundamental art elements and principles applied to the theories and techniques of gallery exhibition design.

191B. Gallery Exhibition Design (3) I, II

Six hours.

Prerequisite: Art 191A.

Advanced problems in the theories and techniques of gallery exhibition design.

193A–193B. Drawing and Illustration for Graphic Communication (3–3) I

Six hours.

Prerequisites: Art 1B, 2A, 115A. Art 193A is prerequisite to 193B.

The disciplines of realistic descriptive illustration including problems in imaginative, aesthetically refined painterly illustration. Media to include gouache, watercolor, scratch board, mixed media, and pen and ink.

194A–194B. Advanced Fashion Imagery (3–3) I, II

Six hours.

Prerequisite: Art 94B is recommended. Art 194A is prerequisite to 194B.

Emphasis on developing individual drawing concepts and creative techniques in fashion illustration. Creation of fashion drawings and fashion advertising layouts. Development of a professional portfolio.

195A. Interior Design (3) I, II

Six hours.

Prerequisites: Art 95A and 95B.

Survey, analysis and design methods concerning problems of interior design of moderate scope, stressing the visual concept as part of the total planning process.

195B. Environmental Design (3) I, II

Six hours.

Prerequisite: Art 195A.

Survey, analysis and design synthesis of problems of more complexity, through interiors, to landscape, to architectural planning, and finally concern for city design.

195C. Economics of Interior Design (3) I, II

Six hours.

Prerequisite: Art 195B.

Techniques and analyses of specification writing, supervision and budget studies of interior design and its application to various projects.

195D. Advanced Interior Design (3) I, II

Six hours.

Prerequisite: Art 195C.

The complete conception and execution of all stages of a full-scale interior design project.

196A–196B. Visual Communication Media (3–3) I, II

Six hours.

Prerequisite: Art 14B. Art 196A is prerequisite to 196B.

Experimental, creative and practical exploration of contemporary communication as related to magazine and editorial layout. Production of a student designed limited edition.

197. Exploration in Visual Imagery (3)

Six hours.

Prerequisite: 14 units of art.

Investigation of experimental and technical reproductive media.

198. Senior Project (3) I, II

Prerequisite: Consent of instructor.

Investigation in art. Formal presentation of project.

206A-206B. Creative Printmaking (1-3)**214. Creative Graphic Communication (1-3)****216A-216B. Creative Painting (1-3)****217A-217B. Creative Sculpture (1-3)****219A-219B. Creative Crafts (1-3)****222. Art Education Colloquium (3)****270. Seminar in Jewelry and Metalwork (3) I, II****280. Seminar in Textile Design (3) I, II****290. Bibliography (1)****291. Seminar in Creative Art (3)****292A-292B. Seminar in Art History (3-3)****294A-294B. Seminar in the Principles of Design in the Space Arts (3-3)****295. Creative Environmental Design (1-6) I, II****298. Special Study (1-3)****299. Thesis or Project (3)**

Astronomy

In the College of Sciences

Faculty

Emeritus: Huffer, Smith, C.
 Professors: Nelson, B. (Chairman), Schopp
 Associate Professors: Daub, Young, A.
 Assistant Professors: Angione, Talbert
 Lecturer: Martin, A.

Offered by the Department

Master of Science degree in astronomy.
 Major in astronomy with the A.B. degree in liberal arts and sciences.
 Major in astronomy with the A.B. degree in applied arts and sciences.
 Minor in astronomy.

Major

With the A.B. in Liberal Arts and Sciences

Preparation for the major. Astronomy 1, 9; and Physics 4A-4B-4C (16 units).

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B; and Physics 101, 105, 112, and three additional units of upper division physics. Recommended: Astronomy 170; Physics 103, 106, 110, 175, 190.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include Mathematics 50, 51, 52 and either 118A-118B or 119, and three additional units of upper division mathematics. Recommended: Mathematics 135A, 135B, 175; Engineering 188.

With the A.B. Degree in Applied Arts and Sciences

Preparation for the major. Astronomy 1, 9; Physics 4A-4B-4C (16 units).

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and Physics 101, 105, 112. Recommended: Astronomy 103, 180; Physics 103, 106, 110, 175, 190.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics, to include Mathematics 50, 51, 52, and either 118A-118B or 119, and three additional units of upper division mathematics. Recommended: Mathematics 7, 135A, 135B, Engineering 188.

Minor

The minor consists of 15 units in astronomy, nine of which must be upper division.

1. Descriptive Astronomy (3) I, II

Methods of astronomy and of the physical nature of members of the solar system, our galaxy and other galaxies. Telescopes will be used for occasional observations. Not open to students with credit in Astronomy 50.

9. Practice in Observing (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Astronomy 1 or 50.

A course designed to supplement Astronomy 1. The course will include constellation study, use of astronomical co-ordinates, and descriptive observations of celestial objects with telescope.

12. Elementary Navigation (3) I

Three hours of laboratory.

Recommended prerequisites: Astronomy 1 and 9.

Compass corrections, time, line of position, use of celestial co-ordinates, tables such as H.O. 214 for the solution of astronomical triangles, etc.

30A-30B. Survey of Literature in Astronomy (1-1) I, II

Prerequisite: Astronomy 1.

Readings in current developments in astronomy; primarily for astronomy majors.

50. Physics of the Solar System (3) I

Prerequisites: Credit or concurrent registration in Mathematics 50 and Physics 4A.

A mathematical treatment of the structure and composition of the Solar System. The physical nature of the sun, planets, satellites, comets, and meteors. Not open to students with credit in Astronomy 1.

51. Physics of the Stellar System (3) II

Prerequisites: Mathematics 50 and Physics 4A.

Application of mathematical and physical principles to stellar astronomy and the universe.

103. Astronomical Optics (3) II

Two lectures and three hours of laboratory.

Prerequisites: Astronomy 50, or Physics 4C, or Physics 2B and 3B.

Theory and applications of optical instruments used in astronomy. In the laboratory the students are required to complete an approved project in optical instrumentation.

104A-104B. Advanced Astronomy (3-3)

Prerequisites: Astronomy 1 and 9 and credit or concurrent registration in both Mathematics 51 and Physics 4C.

Problems in practical astronomy, such as atmospheric refraction, proper motion, photographic and photoelectric photometry, solar system astrophysics, and stellar dynamics.

105. Historic Development of Astronomy (3) I

A study of the more important problems and astronomical concepts in the light of their historical development. Particular attention is given to the biography and contributions of the more important astronomers, such as Galileo, Kepler, Newton, Herschel, Bessel, etc.

112A-112B. Astrophysics (3-3)

Prerequisites: Physics 4C and Astronomy 1. Astronomy 112A is prerequisite to 112B.

An application of modern physics to a study of the sun and the stellar system. A large part of this course will deal with the application of spectroscopy to the study of celestial objects.

150. Introduction to Variable Stars and Peculiar Stars (3) II

Prerequisite: Astronomy 104A or 112A.

A study of variable stars: classification, periods, relation to other stars, methods of observation, and results; also a study of stars with unusual features in their spectra.

170. Astrophysical Spectroscopy (3)

Prerequisite: Mathematics 52 and credit or concurrent registration in Astronomy 112A.

Theory of atomic spectra and atomic structure leading to interpretation of astronomical spectra. Optics of spectrograph design; line identification, spectral classification, radial velocity measurement, and line profile analysis.

180. Celestial Mechanics (3) I, II

Prerequisite: Mathematics 52.

The problem of two bodies based on the solutions of differential equations using Newtonian mechanics. Potential theory; geometrical interpretation of perturbations; calculation of planetary positions.

196. Advanced Topics in Astronomy (2 or 3) I, II

Prerequisite: Consent of instructor.

Selected topics in theoretical astronomy or astrophysics. May be repeated with new material for a total of six units, upon approval of instructor.

198A. Senior Project (1) I

One lecture-discussion period.

Prerequisite: An acceptable master plan for graduation within one year.

Consists of the selection and design of individual projects; oral and written progress reports.

198B. Senior Project (2) II

Six hours of laboratory.

Prerequisite: Astronomy 198A.

Laboratory work, progress reports, oral and written reports.

200. Seminar (2 or 3)**210. Binary Stars (3)****220. Galactic Structure (3)****230. Stellar Interiors (3)****240. Interstellar Matter (3)****250. Stellar Atmospheres (3)****280. Orbit Theory and Computation (3)****297. Research (1-3)****298. Special Study (1-3)****299. Thesis (3)**

Athletics

In the College of Professional Studies

Faculty

Professors: Coryell, Karr (Chairman)

Associate Professors: Baldock, Davis, R.

Assistant Professors: Dowhower, Gilbert, C., Templeton, Zampese

Instructors: Libera, Vezie

180. Theory and Practice of Intercollegiate Sports (Men) (2-3)

Two units: 8 hours. Three units: 12 hours.

Concentrated study in field of interest, with emphasis on skill, strategy, tactics, rules, officiating, and organizing.

Offered in the Fall

A Basketball (3)

B Cross Country (2)

C Football (3)

D Gymnastics (3)

E Swimming (2)

F Water Polo (2)

G Wrestling (3)

N Soccer (2)

Offered in the Spring

H Baseball (3)

I Golf (2)

J Rowing (2)

K Tennis (2)

L Track (3)

M Volleyball (2)

Biology

In the College of Sciences

Faculty

Professors: Baer, Brandt, Cox, G., Farris, Flittner, Hazen (Chairman), Johnson, A., McBlair, Neel, Ratty, Rinehart, Shepard, Sloan, Taylor, K.

Associate Professors: Awbrey, Brookes, Clark, M. E., Collier, B., Daugherty, Ford, R., Miller, P., Parsons, Schapiro, Thwaites

Assistant Professors: Davis, C., Diehl, Ebert, Futch, Hurlbert, Kleinbergs, Melchior, Paolini, Timin, Zedler

Offered by the Department

Doctor of Philosophy degree in genetics and in ecology.

Master of Arts in biology.

Master of Science in biology.

Major in biology with the A.B. degree in liberal arts and sciences.

Major in biology with the A.B. degree in applied arts and sciences.

Major in biology with the B.S. degree in applied arts and sciences.

Minor in biology.

Curricula which prepare for the fields of dentistry, conservation, fisheries, marine biology, medicine, veterinary medicine, and wildlife.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

Teaching minor in biology, with specialization in both elementary and secondary teaching.

Biology Major

With the A.B. Degree in Liberal Arts and Sciences

For the foreign language required for graduation, the department recommends French, German, or Russian.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 1A-1B or 2A-2B and 3A-3B. (35 or 37 units.)

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155 (to be taken in the junior year); an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

Biology Major

With the A.B. Degree in Applied Arts and Sciences

Students must complete twelve units of a single foreign language (chosen from French 1, 2, and 3 or 8A-8B; or German 1, 2, and 3 or 8A-8B; or Russian 1, 2, and 3 or 8A-8B), or equivalent knowledge demonstrated by a test of reading knowledge administered by the foreign language department concerned.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 1A-1B or 2A-2B and 3A-3B or Physics 4A-4B-4C. (35-43 units.)

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155 (to be taken in the junior year); an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

Biology Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 1A-1B or 2A-2B and 3A-3B or Physics 4A-4B-4C. (35-43 units.)

Major. A minimum of 36 upper division units to include Biology 101, 110, and 155 (to be taken in the junior year); an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

Biology Minor

The minor in biology consists of 16 units in biological sciences to include Biology 1 and 2, and nine upper division units in biological sciences selected with approval of the biology adviser.

Biological Sciences Major

For the Standard Teaching Credential

Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by one of the biological sciences advisers for teaching programs in the biological sciences.

Postgraduate year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences or the teaching minor.

Biology Minor

For the Standard Teaching Credential

Specialization in Elementary Teaching

The minor in biology for elementary teaching consists of Chemistry 1A-1B or 2A-2B plus at least 20 units in the biological sciences to include Biology 1 and 2. Electives in the biological sciences must be chosen in consultation with the departmental adviser for teaching programs.

Specialization in Secondary Teaching

The minor in biology for secondary teaching consists of Chemistry 1A-1B, and 11 or 12, plus at least 20 units in the biological sciences to include, in the lower division, Biology 1, 2, and 15; in the upper division, Biology 101, 110, and 155.

1. General Biology (3) I, II

Prerequisites: None; concurrent registration in Biology 2 recommended.

A beginning course in biology stressing processes common to living organisms.

2. General Biology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 1.

A laboratory course in biology stressing processes common to living organisms.

4. Natural History of Plants and Animals (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 1.

An introduction to plants and animals in relation to their environments and to one another, with emphasis on local forms and their habitats.

9. Human Physiology (5) I, II

Three lectures and six hours of laboratory.

Prerequisites: Zoology 8 or 60; Chemistry 2A-2B.

Functions of the human body; emphasis on the circulatory, muscular, and nervous systems. Not open for credit to students with credit for Biology 22.

15. Introduction to Quantitative Biology (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Biology 1, 2, and Mathematics 21.

Methods and experience in defining and solving quantitative problems in biology, including the design of experiments, and parametric and nonparametric statistical techniques.

25. Introduction to Heredity (3) I, II

Hereditary mechanisms and consideration of the social implications of recent and expected developments in the field of heredity.

101. Cellular Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; Chemistry 1A, 1B, and 11 or 12; Physics 2A, 2B, 3A, 3B or 4A-4B-4C.

Physiological processes at the cellular level.

103. General Cytology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

The structure and function of cells and cell inclusions of plants and animals, including the chemical and physical properties of protoplasm and cytological methods.

109. Regional Field Studies in Biology (1-3)

One- to three-week periods during vacations and summer sessions.

Prerequisites: At least 12 units in the biological sciences, including Biology 1 and 2, and consent of instructor.

Extended field studies of the flora, fauna, and biotic communities of major natural regions of western North America. May be repeated with new content to a maximum of six units.

110. Ecology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

Relationships between organisms and the environment; field study in local marine, fresh water, mountain, chaparral, and desert habitats.

111. Aquatic Biology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

Biological, chemical and physical considerations of inland waters.

112. Fisheries Biology (3) II

Two lectures and three hours of laboratory.

Prerequisite: Biology 110.

Fisheries of commercial importance. The dynamics of exploited populations.

113. Biological Oceanography (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 110, Zoology 50, Chemistry 1B, Physics 2.

Ecological concepts as applied to pelagic and benthic marine organisms and their environment. Field and laboratory experience in oceanographic techniques, particularly the coastal environment.

114. Advanced Ecology (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 110.

The ecology of individuals, populations, or communities. May be repeated with new content. Maximum credit six units applicable on a master's degree.

115. Conservation of Wildlife (3) I, II

Prerequisite: Biology 1.

Plant and animal resources with emphasis on their conservation and intelligent use.

121. Systems Ecology (5) I, II

Four lectures and three hours of laboratory.

Prerequisites: Biology 110 and consent of instructor.

Provides a foundation in the theory and techniques necessary for a systems approach to ecology, including computer programming and topics in applied mathematics useful in systems analysis.

122. Environmental Measurement (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Biology 110 and consent of instructor.

The utilization of electronic equipment to record ecological data under field conditions, including field power supplies, effects of fluctuations in environmental conditions, types of sensors, amplifiers and data recorders, and the interfacing of components.

123. Simulation of Ecological Systems (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 121 and consent of instructor.

Properties of different types of models, Monte Carlo methods, the design of simulated experiments, ways of evaluating models, the use of simulation studies as a means of guiding research. The computer will be extensively used.

140. Principles of Human Physiology (3) I, II

Prerequisite: Biology 1 or Zoology 8.

Principles of human physiology. Body maintenance and nerve and muscle physiology. Not open to students with credit in Biology 9. (Formerly numbered Biology 22.)

141. Human Physiology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 140.

Laboratory work in human physiology. Not open to students with credit in Biology 9. (Formerly numbered Biology 23.)

142A-142B. Comparative Animal Physiology (4-4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Biology 101 and consent of instructor.

Semester I: Feeding and digestion, blood and circulation, nutrition, respiration and metabolism, excretion and osmoregulation. Semester II: Receptor, effector, and integrative systems. In both semesters, consideration of function ranges from molecular to organismal levels. All major phyla are considered. Individual laboratory research. (Formerly numbered Biology 142.)

148. Photophysiology (3) II

Prerequisite: Biology 101.

Bioluminescence and the physiological effects of visible and ultraviolet radiations on plants and animals.

148L. Photophysiology Laboratory (1) II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 148.

The generation, measurement and control of visible and ultraviolet radiations, and the measurement and analysis of selected biological effects of these radiations.

150. Radiation Biology (3) I, II

Prerequisites: Biology 1 or equivalent and Physics 2A-2B, 3A-3B. Recommended: Chemistry 1A-1B, Biology 101, and Physics 121.

Principles underlying radiological reactions of ionizing radiations. Effects of ionizing radiations at the biochemical, cell, organ, and organism levels.

150L. Radiation Biology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 150.

The laboratory determination of the effects of ionizing radiation on biological systems.

151. Radioisotope Techniques in Biology (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; Chemistry 1A and 1B; Physics 2A, 2B, 3A and 3B. Recommended: Chemistry 4 or 5, and Biology 101.

The principles and application of radioisotopes in biology. Radionuclide measurement, safe handling, tracer and radioautography techniques.

155. Genetics (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15.

Principles of plant and animal genetics, with experiments and demonstrations illustrating the mechanisms of heredity.

156. Developmental Biology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 155 and Chemistry 11 or 12. Recommended: Biology 101.

Analysis of development with emphasis on embryonic differentiation.

157. Cytogenetics (4) I

Two lectures and six hours of laboratory.

Prerequisite: Biology 155.

The physical basis of heredity. Study of the chromosomes and chromosome behavior in relation to problems in heredity and evolution.

158. Human Genetics (4) II

Two lectures and six hours of laboratory.

Prerequisite: Biology 155.

Genetics as related to human biology, with consideration of the applied fields of medical genetics, genetic counseling, and population studies.

159. Human Heredity (3) I, II

Prerequisite: Biology 1.

Selected principles of human inheritance with emphasis on relationships to other fields of human studies. Not open to students with credit in Biology 155 or 158.

160. Experimental Evolution (3) I

Two lectures and three hours of laboratory.

Prerequisite: Biology 155.

The theories of evolution and speciation and the methods of study of modern problems.

161. History of Biology (3) I, II

Prerequisite: A college course in biology.

Lectures and reports tracing biological scientific development, with emphasis on the influence of personalities and trends of the times. Not more than three units in the history of biology may be counted for graduate credit.

162. Source Material in the History of Biology (3)

Prerequisite: Biology 161.

A study of original papers of significance to the history of biology. Not more than three units in the history of biology may be counted for graduate credit.

163. Microbial Genetics (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Biology 155. Microbiology 101 is recommended.

The design, methods and execution of research in microbial genetics.

165. Biology of Natural Populations (3) I, II

Prerequisite: A college course in Biology.

The relation of modern concepts of genetics, ecology and physiology to natural populations with emphasis on the problems of human populations. Not open to majors in the biological sciences.

167A-167B. Biology for Teachers (4-4)

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Advanced study of biological principles including classification, physiology, morphology, and evolution. Designed primarily for those electing a biology minor for elementary or secondary teaching curricula. Not open to students majoring in the biological sciences.

169. Population Genetics (3) II

Two lectures and three hours of laboratory.

Prerequisites: Biology 15 and 155, Mathematics 22 or 50.

Discontinuous and continuous variation in natural populations.

170. Contemporary Problems in Biology (1) S

A series of six weekly lectures on varied aspects of biology by scientists engaged in research. Reading and reports required of students enrolled for credit. These lectures are open to the public. May be repeated for a total of 3 units.

171. Mutagenesis (3)

Prerequisite: Biology 155.

Basic principles and applications of mutation induction, expression, and detection at all levels of biological organization. Emphasis on mutation induction by chemicals and ionizing radiations.

175. Statistical Methods in Biology (3) I

Two lectures and three hours of laboratory.

Prerequisite: Biology 101, 110 or 155.

Application of statistical techniques to biological data. Not open to students with credit for another upper division course in statistics except with written approval of the chairman of the department offering the student's major to be filed with the Evaluations Office.

181. Advanced Cellular Physiology (3) I, II

Prerequisite: Biology 101.

Current topics in cellular physiology.

190. Senior Investigation and Report in Physiology (2) I, II

Prerequisites: Biology 101, senior standing and consent of instructor.

Investigation and reports on current physiological literature.

191. Senior Investigation and Report in Ecology (2) I, II

Prerequisites: Biology 110, senior standing and consent of instructor.

Investigation and reports on current ecological literature.

195. Senior Investigation and Report in Genetics (2) I, II

Prerequisites: Biology 155, senior standing and consent of instructor.

Investigation and reports on current genetic literature.

198. Methods of Investigation (2) I, II

One hour of discussion and three hours of laboratory.

Prerequisites: Junior standing and a major in the Division of the Life Sciences.

Individual and original investigations in biology; class reports. Four units maximum credit for Biology 198 or a combination of this course with Microbiology or Zoology 198.

200. Seminar (2 or 3)**210. Seminar in Cellular Physiology (2)****220. Seminar in Developmental Biology (2)****221. Developmental Genetics (3)****222. Morphogenesis (3)****230. Speciation (3)****231. Seminar in Ethology and Comparative Psychology (3)****240. Seminar in Terrestrial Ecology (2)****241. Seminar in Aquatic Ecology (2)****242. Population and Community Ecology (3)****243. Physiological Ecology (3)****244. Physical Aspects of Ecology (3)****245. Aquatic Ecology (3)****246. Behavioral Ecology (3)****250. Biogeography (3)****260. Seminar in General Physiology (2)****261. Seminar in Environmental Radiation (2)****262. Cytoplasmic Inheritance (3)****263. Seminar in Comparative Physiology (2)****264. Methods in Physiology (2)****265. Molecular Biophysics (3)****270. Seminar in Genetics (2)**

- 276. Physiological Genetics (3)**
- 290. Bibliography (1)**
- 291. Investigation and Report (3)**
- 297. Research (1-3)**
- 298. Special Study (1-3)**
- 299. Thesis (3)**

Botany

In the College of Sciences

Faculty

Emeritus: Harvey

Professors: Gallup, Wedberg (Chairman)

Associate Professors: Alexander, Preston

Assistant Professors: Carmichael, Rayle

Offered by the Department

Master of Arts in biology with an emphasis in botany.

Major in botany with the A.B. degree in liberal arts and sciences.

Major in botany with the B.S. degree in applied arts and sciences.

Minor in botany.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

Botany Major

With the A.B. Degree in Liberal Arts and Sciences

It is recommended that students choose French, German, or Russian to meet the foreign language requirement for graduation.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B, and 11 or 12; Mathematics 21 or 40; and Physics 1A-1B or 2A-2B and 3A-3B. (33 or 35 units.)

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155; Botany 100 or 101 or 102 or 103, and 190A-190B. Botany 114, 130, and 140 and Microbiology 101 are recommended.

Botany Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B, and 11 or 12; Mathematics 21 or 40; and Physics 1A-1B or 2A-2B and 3A-3B. (33 or 35 units.) Recommended: German or French or Spanish; Geology 1A-1B or 2 and 3.

Major. A minimum of 36 upper division units in the biological sciences to include Biology 101, 110, and 155; Botany 100 or 101 or 102 or 103, 114, and 190A-190B; Microbiology 101. Botany 130 and 140 are recommended.

Botany Minor

The minor consists of 15 units in botany.

Biological Sciences Major

For the Standard Teaching Credential

Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the departmental adviser for biological sciences teaching programs.

Postgraduate Year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must

have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

1. Plants and Man (3) I, II

Basic structure and function of plants with emphasis on the interrelationships of plants and man.

100. General Botany (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Biology 1 and 2.

Primarily for majors in the biological sciences. Structure, physiology, reproduction and evolution of the major plant groups.

101. Phycology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Morphology and phylogenetic relationships of the algae.

102. Mycology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

The structure, food relations, and classification of fungi.

103. Vascular Plants (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Structure, development and phylogenetic relationships of the Bryophytes and vascular plants.

112. Cultivated Trees and Shrubs (3) I

One lecture and six hours of laboratory and field work.

Prerequisites: Biology 1 and 2. Botany 114 is recommended.

Identification of the common cultivated trees and shrubs of the San Diego region. Trips to local parks and private gardens.

114. Systematic Botany (4) II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2; and either 110 or 155. Botany 103 recommended.

Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification.

118. Plant Study of the California Deserts (3)

Formerly X-119. Offered in Extension only.

One lecture and six hours laboratory. Field trips arranged.

Flowering plants of the desert region.

119. Field Botany (4) S

Two lectures and six hours of laboratory.

Prerequisite: A course in college biological science or consent of instructor.

Local native vegetation with emphasis on ecological units within floristic areas. Primarily for students not majoring in the College of Sciences.

126. Plant Pathology (4) I

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2. Botany 102 recommended.

A practical course dealing with the principles of disease in plants, control measures, and quarantine procedures. Emphasis is placed on the determination and control measures of those pathogenic organisms which affect crops, trees and shrubs and nursery stock.

130. Plant Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, 15, 101; and Chemistry 1A and 1B.

The activities of plants, including food manufacture, absorption, conduction, transportation, respiration, growth and movement.

140. Plant Anatomy (4) II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2. Botany 100 recommended.

The arrangement of structural elements within plant organs, with emphasis on cell and tissue types.

162. Agricultural Botany (2) I

Field trips to be arranged.

Prerequisites: Biology 1 and 2. Botany 100 or Zoology 121 recommended.

California crop plants, their general identification, cultural methods, and regional distribution.

172. Palynology (3) I

One lecture and six hours of laboratory.

Prerequisite: A course in college biological science.

Principles and methods of pollen and spore diagnosis, with reference to use in taxonomy, paleontology, anthropology, and medicine.

190A. Senior Investigation and Report (1) I

One discussion period and two additional hours to be arranged.

Prerequisites: Botany 101 or 102 or 103, and senior standing.

Selection and design of individual project; oral and written reports.

190B. Senior Investigation and Report (2) II

One discussion period and five additional hours to be arranged.

Prerequisite: Botany 190A.

Individual investigation, progress reports, oral and written final reports.

200. Seminar (2 or 3)**201. Seminar in Phycology (2)****202. Seminar in Mycology (2)****203. Seminar in Vascular Plants (2)****214. Seminar in Systematic Botany (2)****226. Seminar in Plant Pathology (2)****230. Seminar in Plant Physiology (2)****240. Seminar in Plant Anatomy (2)****272. Seminar in Palynology (2)****297. Research (1-3)****298. Special Study (1-3)****299. Thesis or Project (3)**

Business Administration

See "School of Business Administration" in the catalog section
Professional Schools: Courses and Curricula.

Chemistry

In the College of Sciences

The department is on the approved list of the American Chemical Society.

Faculty

Professors: Grubbs, Harrington, N., Hellberg, Isensee, Jensen, Jones, W., Joseph, Landis, Malik, O'Neal, Richardson, W., Ring, Robinson, D., Rowe, Sharts, Spangler, Stewart, C., Wadsworth (Chairman), Walba, Wick, Woodson

Associate Professors: Abbott, Bennett, Mathewson

Assistant Professors: Coffey, Malley, Roeder

Offered by the Department

Doctor of Philosophy in chemistry.

Master of Arts in chemistry.

Master of Arts, teaching service, with concentration in chemistry.

Master of Science in chemistry.

Major in chemistry with the B.S. in applied arts and sciences with the Certificate of the American Chemical Society.

Major in chemistry with the A.B. in applied arts and sciences, with or without the Certificate of the American Chemical Society.

Major in chemistry with the A.B. in liberal arts and sciences.

Minor in chemistry.

Teaching major in chemistry, with specialization in both elementary and secondary teaching.

Teaching minor in chemistry, with specialization in both elementary and secondary teaching.

Major

With the B.S. Degree in Applied Arts and Sciences and Certificate of the American Chemical Society

The curriculum outlined below for the B.S. degree in applied arts and sciences is based upon the recommendations of the Committee for Professional Training of Chemists of the American Chemical Society. It qualifies graduates for many types of positions as chemists and provides the training required by most universities for admission to graduate work in chemistry.

Preparation for the major. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

Major. A minimum of 36 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 127A, 155, one unit of 198; and 14 units of upper division electives in chemistry or in related subjects with approval of the department.

Foreign language requirement. German 8A or Russian 8A.

OUTLINE FOR THE B.S. DEGREE AND CERTIFICATE

	Units			Units	
	1st Sem.	2nd Sem.		1st Sem.	2nd Sem.
First year			Second year		
Chemistry 1A-1B	5	5	Chemistry 5	4	—
†Mathematics 4, 40, 50	5	5	Chemistry 12-112	4	4
Physics 4A	—	4	Chemistry 13-113	1	1
*Basic Subject	3	—	Mathematics 51, 52	4	4
*Social Sciences	3	3	Physics 4B, 4C	4	4
*Physical Activities	$\frac{1}{2}$	$\frac{1}{2}$	German 1 or Russian 1	—	4
	16½	17½	*Physical Activities	$\frac{1}{2}$	$\frac{1}{2}$
				17½	17½
	Units			Units	
	1st Sem.	2nd Sem.		1st Sem.	2nd Sem.
Third year			Fourth year		
Chemistry 110A-110B	3	3	Chemistry 111	3	—
Chemistry 155	—	4	Chemistry 198	1	—
German 2, 8A, or			Chemistry 127A	3	—
Russian 2, 8A	4	2	Chemistry Electives	8	6
‡American Institutions	3	3	General Electives	—	7
§Biology 1	3	—		15	13
*Humanities	3	3			
	16	15			

* Refer to Catalog section on General Education requirements.

† Students eligible to take Mathematics 50 in their first semester should do so and substitute for Mathematics 4 and/or 40 two to five units of general electives.

‡ If this requirement is met by examination the appropriate number of units should be added to general electives.

§ Premedical and pre dental students will also take Biology 2 and decrease general elective units by 1.

With the A.B. Degree in Applied Arts and Sciences and Certificate of the American Chemical Society

Preparation for the major. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 127A, 155, one unit of 198; and two units of upper division electives in chemistry to be chosen from Chemistry 116A, 118, 127B, 131, 154.

Foreign language requirement. German 8A or Russian 8A.

OUTLINE FOR A.B. DEGREE AND CERTIFICATE

	Units			Units	
	1st Sem.	2nd Sem.		1st Sem.	2nd Sem.
First year			Second year		
Chemistry 1A-1B	5	5	Chemistry 5	4	—
†Mathematics 4, 40, 50	5	5	Chemistry 12-112	4	4
Physics 4A	—	4	Chemistry 13-113	1	1
*Basic Subject	3	—	Mathematics 51, 52	4	4
*Social Sciences	3	3	Physics 4B, 4C	4	4
*Physical Activities	$\frac{1}{2}$	$\frac{1}{2}$	German 1 or Russian 1	—	4
	16½	17½	*Physical Activities	$\frac{1}{2}$	$\frac{1}{2}$
				17½	17½

	Units			Units	
	1st Sem.	2nd Sem.		1st Sem.	2nd Sem.
<i>Third year</i>			<i>Fourth year</i>		
Chemistry 110A-110B	3	3	Chemistry 111	3	—
Chemistry 155	—	4	Chemistry 198	1	—
German 2, 8A, or			Chemistry 127A	3	—
Russian 2, 8A	4	2	Chemistry Electives	2	—
†American Institutions	3	3	General Electives	—	15
§Biology 1	3	—			
*Humanities	3	3			
	16	15			

* Refer to Catalog section on General Education requirements.

† Students eligible to take Mathematics 50 in their first semester should do so and substitute for Mathematics 4 and/or 40 two to five units of general electives.

‡ If this requirement is met by examination the appropriate number of units should be added to general electives.

§ Premedical and Predental students will also take Biology 2 and decrease general elective units by 1.

With the A.B. Degree in Applied Arts and Sciences

This plan is designed for only those students who, desire the training in a pre-medical and predental curriculum or for secondary school teaching. This plan cannot be taken by students who intend to become professional chemists or who intend to earn advanced degrees in chemistry or who plan to teach in junior colleges. Application for admission to the plan must be made to the department chairman upon achieving junior class standing. All transfer students with upper division standing must apply before the second semester of work at San Diego State College. With an appropriate choice of electives, graduates can meet the requirements for admission to medical, dental, and pharmaceutical schools. With a fifth year of graduate work, requirements for the secondary teaching credential can be met.

Preparation for the major. Chemistry 1A-1B, 4 (or 5), 12 and 13; Physics 4A-4B; Mathematics 4, 40, 50, 51, and Biology 1, 2. (45 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry 109A, B, C (or 110A-110B, 111), 112, 155 (or 150), and eight units of upper division electives in chemistry. Chemistry 127A is recommended for all teaching majors. Chemistry 115A-115B or 116A-116B is recommended for all pre-medical students.

Minor. A minor in biology or zoology is expected for pre-professional students. The minor required for a secondary school credential may be completed in the fifth year for teaching credential candidates.

Foreign language requirement. Recommended: German 8A or Russian 8A.

With the A.B. Degree in Liberal Arts and Sciences

This major is designed for students desiring emphasis on chemistry as part of a liberal arts and sciences education or as preparation for entering a related profession.

Preparation for the major. Chemistry 1A-1B, 4, and 12; Physics 1A-1B or 2A-2B and 3A-3B; and Mathematics 21 and 22. (32 or 34 units.)

Major. A minimum of 24 upper division units in Chemistry to include Chemistry 109A-109B, 109C, 112, 150; and eight units of upper division electives in chemistry.

For the Standard Teaching Credential

All candidates for a credential must complete all other requirements for the credential, as outlined in the section of this catalog on the School of Education.

The major in chemistry for the standard teaching credential, with specialization in either elementary or secondary teaching, requires an undergraduate major in chemistry. All courses for the teaching major must be approved by the chemistry adviser for teaching programs. In addition, candidates for the credential with a specialization in secondary teaching must complete, in the postgraduate year, a minimum of six units of graduate work in chemistry.

Minor

The minor in chemistry for the bachelor's degree consists of Chemistry 1A-1B, 4 or 5, 12, and six upper division units in chemistry (24 units).

The minor in chemistry for the standard teaching credential, with specialization in either elementary or secondary teaching, consists of not less than 20 units in chemistry, six units of which must be in upper division courses. If the major for secondary teaching is non-academic, at least 12 upper division units of chemistry must be taken. All courses must be approved by the chemistry adviser for teaching programs.

1A-1B. General Chemistry (5-5) I, II

Three lectures and six hours of laboratory.

Prerequisites: High school chemistry and two years of college preparatory mathematics. Recommended: High school physics and two years additional mathematics.

General principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester. Duplicate credit will not be allowed for the corresponding course in Chemistry 10A, 10B, or 1E. Students with credit for both Chemistry 1A and 2A will receive a total of 5 units of credit toward graduation.

1E. General Chemistry for Engineers (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 1A.

A continuation of the study of the principles of chemistry with emphasis on the relationships to the field of engineering. Open only to engineering majors. Not open to students with credit in Chemistry 1B.

2A. Introductory General Chemistry (3) I, II

Two lectures and three hours of laboratory.

Elementary principles of chemistry. Not open to students with credit in Chemistry 1A.

2B. Elementary Organic Chemistry (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 2A or 1A.

Introduction to the compounds of carbon including both aliphatic and aromatic substances. Not open to students with credit in Chemistry 1B or 1E.

3. Introductory Biochemistry (3) I, II

Formerly Chemistry of Nutrition.

Three lectures with demonstrations.

Prerequisites: Chemistry 2A-2B.

Fundamental principles of the chemistry of living processes. This course intended primarily for majors in home economics, nursing, and related fields.

4. Elementary Quantitative Analysis (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Chemistry 1B or 2B.

Fundamentals of volumetric and gravimetric analysis. Not applicable to the B.S. and the A.B. degree and certificate for chemistry majors. Not open to students with credit in Chemistry 5.

5. Analytical Chemistry (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1B; and credit or concurrent registration in Mathematics 22 or 50.

Theory and practice of volumetric, gravimetric and electrical methods of analysis. Not open to students with credit in Chemistry 4. Duplicate credit will not be allowed for equivalent work in Chemistry 10A-10B.

10A-10B. Chemical Principles and Techniques (Honors) (5-5)

Three lectures and six hours of laboratory.

Prerequisites: An outstanding record in high school chemistry, physics, and mathematics, accompanied by superior achievement on the College Aptitude Test and the college Mathematics Placement Examinations.

The application of modern electronic theory to the study of general chemistry with emphasis in the laboratory on analytical methods. Qualitative and quantitative analysis is included. Chemistry 10A-10B takes the place of Chemistry 1A-1B and 5 for these students as prerequisites for further courses in chemistry.

11. Introductory Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 1B.

Aliphatic and aromatic compounds including reaction mechanisms. For students needing only one semester of organic chemistry. Not open to students with credit in Chemistry 12.

12. Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 1B.

Properties and synthesis of organic compounds including reaction mechanisms. First half of a year course.

Not open to students with credit in Chemistry 11.

13. Organic Chemistry Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Open only to students enrolled concurrently in Chemistry 12.

The theory and practice of laboratory operations.

22. Glass Blowing (1) I, II

Three hours of laboratory.

Prerequisite: Chemistry 1B.

Elementary training in the manipulation of glass.

109A-109B. Fundamentals of Physical Chemistry (3-3)

Prerequisites for 109A: Chemistry 4, Mathematics 22, and Physics 2B and 3B. Not open to students with credit in Chemistry 110A.

Prerequisites for 109B: Chemistry 109A and credit or concurrent registration in Chemistry 150. Not open to students with credit in Chemistry 110B.

Fundamental principles of theoretical chemistry. This course cannot apply to the A.B. and certificate or B.S. major in chemistry.

109C. Fundamentals of Physical Chemistry Laboratory (2) II

Six hours of laboratory.

Prerequisite: Concurrent registration or credit in Chemistry 109B. Not open to students with credit or concurrent registration in Chemistry 111.

Physico-chemical experiments, errors of measurement and technical report writing.

110A-110B. Physical Chemistry (3-3) I, II

Prerequisites for 110A: Chemistry 5 and credit or concurrent registration in Physics 4C and Mathematics 52. Not open to students with credit in Chemistry 109A.

Prerequisites for Chemistry 110B: Chemistry 110A. Not open to students with credit in Chemistry 109B.

Theoretical principles of chemistry with emphasis on mathematical relations.

111. Physical Chemistry Laboratory (3) I, II

Nine hours of laboratory.

Prerequisite: Credit in Chemistry 110B or concurrent registration with consent of instructor. Not open to students with credit or concurrent registration in Chemistry 109C.

Physico-chemical apparatus and measurements, with emphasis on technical report writing.

112. Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 12.

A continuation of Chemistry 12.

113. Organic Chemistry Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Open only to students enrolled concurrently in Chemistry 112.

Theory and practice of laboratory operations.

114A-114B. Clinical Biochemistry (4-4)

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 4 or 5 and 11 or 12.

Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry.

115A-115B. Fundamentals of Biochemistry (3-3) I, II

Prerequisites: Chemistry 4 or 5, and 11 or 12.

The chemistry of intermediary metabolism and its regulation. Not open to students with credit in Chemistry 116A-116B.

116A-116B. General Biochemistry (3-3)

Prerequisites: Chemistry 109B or 110B, and 112.

The structure, function, metabolism, and thermodynamic relationships of chemical entities in living systems. Not open to students with credit in Chemistry 115A-115B.

117. Biochemistry Laboratory (2) I, II

Six hours of laboratory.

Prerequisite: Credit or concurrent registration in 115B or 116B.

The theory and practice of laboratory procedures used in the study of intermediary metabolism. Includes the purification of enzymes, radioactivity tracer techniques, and the isolation of cell components.

118. Advanced Physical Chemistry (3) II

Prerequisite: Chemistry 110B.

Chemical statistics, solid state theory, transport phenomena, chemical kinetics in solution and additional selected topics in modern physical chemistry.

127A. Inorganic Chemistry (3) I, II

Prerequisite: Credit or concurrent registration in Chemistry 109B or 110B.

The physical basis of the periodic system, complex inorganic compounds, and the nature of the chemical bond.

127B. Inorganic Chemistry (3) I, II

Prerequisite: Chemistry 127A.

An advanced systematic study of representative and transition elements and their compounds.

131. Theoretical Organic Chemistry (3) I, II

Prerequisites: Chemistry 109A or 110A and 112.

The application of modern electronic theory to the physical and chemical properties of organic compounds.

135. CHEM Study (3) II

One lecture and six hours of laboratory.

Prerequisites: Chemistry 1B.

New approach to the study of major concepts of chemistry. Based on lecture and laboratory materials prepared by the Chemical Education Materials Study Committee. Open only to secondary teacher candidates.

150. Analytical Chemistry (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 4 or 5, 12, and 109A or 110A.

Advanced theory and practice of quantitative analysis and an introduction to instrumental methods of analysis.

154. Organic Qualitative Analysis (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Chemistry 112 and credit or concurrent registration in Chemistry 109A or 110A.

The identification of organic compounds and mixtures.

155. Advanced Instrumental Methods (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 5, 112, and credit or concurrent registration in 110B. Not open to students with credit for Chemistry 150.

Advanced theory and practice of chemical instrumentation.

160A-160B. Principles of Chemical Engineering (3-3)

(Same course as Engineering 160A-160B)

Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A.

Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

170. Radiochemistry (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Chemistry 4 or 5.

Laboratory principles and techniques of radioactivity applied to the various fields of chemistry. Experimental methods used in tracer applications, activation analysis, chemical investigation of the actinides, study of nuclear reactions, and radiolysis.

180. Chemical Oceanography (3) II

Three lectures and occasional field trips.

Prerequisite: Credit or concurrent registration in Chemistry 109B or 110B.

The application of the fundamentals of chemistry to the study of oceans.

191. Chemical Literature (1)

Prerequisite: Upper division standing in chemistry.

An introduction to the availability, scope and use of the chemical literature.

196. Selected Topics in Chemistry (1-3)

Prerequisite: Consent of instructor.

Selected topics in modern chemistry. May be repeated for additional credit with new subject matter for a total of six units.

198. Senior Project (1-3) I, II

Prerequisites: Three one-year courses in chemistry and senior standing.

An individual investigation and report on a problem. May be repeated to a maximum of six units.

200. Seminar (1 to 3)

- 210. Advanced Topics in Physical Chemistry (1-3)
- 211. Chemical Thermodynamics (3)
- 212. Chemical Kinetics (3)
- 213. Quantum Chemistry (3)
- 214. Molecular Structure (3)
- 215. Chemical Statistical Mechanics (3)
- 216. Physical Chemistry of Electrolytic Solutions (2)
- 220. Advanced Topics in Inorganic Chemistry (1-3)
- 221. Mechanisms of Inorganic Reactions (3)
- 222. Chemistry of the Nonmetals (2)
- 230. Advanced Topics in Organic Chemistry (1-3)
- 231. Mechanisms of Organic Reactions (3)
- 232. Advanced Organic Chemistry (3)
- 250. Advanced Topics in Analytical Chemistry (1-3)
- 260. Advanced Topics in Biochemistry (1-3)
- 261. Advanced Biochemical Techniques (2)
- 262. Enzymology (2)
- 270. Nuclear Chemistry (2)
- 290. Bibliography (1)
- 291. Research Seminar (1)
- 297. Research (1-3)
- 298. Special Study (1-3)
- 299. Thesis (3)

Chinese

See Classical and Oriental Languages.

City Planning

See Public Administration and Urban Studies.

Classical and Oriental Languages

In the College of Arts and Letters

Faculty

Emeritus: Burnett

Professor: Warren, E. W.

Associate Professors: Ingham, Schaber (Chairman)

Assistant Professors: Eisner, Genovese

Lecturers: Gefter, Kobayashi, Woo

Offered by the Department

Major in Classics with the A.B. degree in liberal arts and sciences.

Minor in Classics.

Teaching minor in Humanities. See "School of Education" in the catalog section Professional Schools, Courses and Curricula.

Teaching minor in Latin.

Classics Major

With the A.B. Degree in Liberal Arts and Sciences

Concentration in One Language

Preparation for the major. Greek 1 and 2; or Latin 1, 2, and 3 (8 or 12 units).

Major. Thirty or 33 upper division units to include Comparative Literature 102A-102B; History 111A-111B; Philosophy 101; 18 units of Greek or 15 units of Latin.

Concentration in Two Languages

Preparation for the major. Greek 1 and 2; or Latin 1, 2, and 3 (8 or 12 units).

Major. Thirty-six upper division units to include Comparative Literature 102A-102B; History 111A-111B; Philosophy 101; 12 units of Greek; and 9 units of Latin.

Classics Minor

The minor in classics consists of 18 units, of which nine units must be chosen from the following: Greek 103, 104, 105, 106, 199; Latin 104, 105, 106, 107, 199; Art 153; History 111A, 111B; Philosophy 101; Comparative Literature 102A, 102B. The student must have 12 units of Greek or of Latin; he may fulfill part of this requirement in high school.

Latin Minor

For the Standard Teaching Credential

The minor in Latin for secondary teaching consists of 20 units of Latin, at least six units of which must be in upper division courses (exclusive of course equivalents and Comparative Literature 102B).

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Latin may be counted as the equivalent of Latin 1; three years the equivalent of Latin 2; and four years the equivalent of Latin 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

Courses in Translation

See English, History, and Philosophy.

Chinese

1. Elementary (4)

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Chinese culture and civilization, minimum essentials of grammar.

2. Elementary (4)

Four lectures and one hour of laboratory.

Prerequisite: Chinese 1.

Continuation of Chinese 1.

3. Intermediate (4)

Prerequisite: Chinese 2.

A practical application of the fundamental principles of grammar. Reading in Chinese of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4)

Prerequisite: Chinese 3.

Continuation of Chinese 3. Reading of selections from Chinese literature.

Greek

1. Elementary (4) I

Four lectures and one hour of laboratory.

Introduction to ancient Greek, emphasizing grammatical foundations of New Testament and Attic Prose.

2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Greek 1.

Continuation of Greek grammar with selections from St. John, Herodotus, and Plato. Interpretation, style and grammar.

103. Readings in Ancient Greek (3) I

Prerequisite: Greek 2.

Graded readings from the masters of Greek prose and poetry. Emphasis on rapid reading.

104. Readings in Ancient Greek (3) II

Prerequisite: Greek 103.

Intensive study of one or more major writers, such as Plato, Euripides, and Demosthenes. Author selected in consultation with students.

105. Greek Poetry (3)

Prerequisite: Greek 104.

Literary, linguistic, and cultural themes among the Greek poets. Contributions of the Greeks to later ages. May be repeated with new content. Maximum credit six units.

106. Greek Prose Writers (3)

Prerequisite: Greek 104.

Origin and development of the genre of each author and his literary, philosophical, or political contribution to western civilization. May be repeated with new content. Maximum credit six units.

Hebrew

1. Elementary (4) I

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings in Hebrew culture, essentials of grammar.

2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Hebrew 1.

Continuation of Hebrew 1.

3. Intermediate (4) I

Prerequisite: Hebrew 2.

Application of fundamental principles of grammar. Readings in Hebrew cultural material, oral practice.

4. Intermediate (4) II

Prerequisite: Hebrew 3.

Continuation of Hebrew 3.

Japanese

1. Elementary (4)

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Japanese culture and civilization, minimum essentials of grammar.

2. Elementary (4)

Four lectures and one hour of laboratory.

Prerequisite: Japanese 1.

Continuation of Japanese 1.

3. Intermediate (4)

Prerequisite: Japanese 2.

A practical application of the fundamental principles of grammar. Reading in Japanese of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4)

Prerequisite: Japanese 3.

Continuation of Japanese 3. Reading of selections from Japanese literature.

Latin

1. Elementary (4) I

Four lectures and one hour of laboratory.

Study of the language and Roman culture, with reading of selected prose passages.

2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Latin 1 or two years of high school Latin.

Continuation of Latin 1.

3. Intermediate (4) I

Prerequisite: Latin 2 or three years of high school Latin.

A practical application of the fundamental principles of grammar. Reading of selected passages emphasizing the contribution of the ancient culture to our own.

104. The Augustan Age (3)

Prerequisite: Latin 3.

Selections from such authors as Vergil, Horace, Ovid, the elegiac poets, Livy. Literary aspects of individual genres and influence of each writer on later literature. May be repeated with new content. Maximum credit six units.

105. Literature of the Republic (3)

Prerequisite: Latin 3.

Selections from such authors as Plautus, Terence, Lucretius, Caesar, Cicero, Sallust, Nepos. Analysis of language and style of the author and his relationship to ideas and ideals of the Roman Republic. May be repeated with new content. Maximum credit six units.

106. Literature of the Empire (3)

Prerequisite: Latin 3.

Selections from such authors as Seneca, Petronius, Lucan, Pliny, Martial, Tacitus, Juvenal, Suetonius. Characteristics of genres and style of the Silver Age. May be repeated with new content. Maximum credit six units.

107. Late Latin (3)

Prerequisite: Latin 3.

Selections from authors ranging from Tertullian and St. Augustine to Erasmus and Milton. The changes in Latin throughout the centuries. May be repeated with new content. Maximum credit six units.

Comparative Literature

See English.

Drama

In the College of Professional Studies

Faculty

Professors: Amble, Powell (Chairman), Stephenson

Associate Professor: Howard, G.

Assistant Professors: Annas, Harvey, M., Lessley, Owen

Offered by the Department

Master of Arts in drama.

Major in drama with the A.B. degree in applied arts and sciences.

Minor in drama.

Teaching major in drama with specialization in secondary teaching.

Teaching minor in drama with specialization in both elementary and secondary teaching.

Major

With the A.B. Degree in Applied Arts and Sciences

Preparation for the major. Drama 30, 31, 40, 50, and Telecommunications and Film 1 or 70. (15 units.)

Note: Drama 5 and 10 should be taken as part of the general education requirements.

Major. A minimum of 24 upper division units in drama to include Drama 120, 127A, 128, 132, 140A, 160A, 160B, and five units of electives in drama (excepts Drama 142 and 199) selected with the approval of the adviser.

In addition to course requirements the student must participate in a total of five Major Theatre performances and three Studio or Experimental Theatre activities.

Emphasis in Design for Drama

Preparation for the major. Drama 30 or 31, 40, 50, and Telecommunications and Film 3. (12 units.)

Note: Drama 5 and 10 should be taken as part of the General Education requirements.

Major. A minimum of 24 upper division units in drama to include Drama 127A, 140A, 140B, 145A, 148, 152A, 160A, 160B. In addition to course requirements the student must participate in a minimum of five Major Theater performances and three Studio or Experimental Theater activities.

Emphasis in Design for Television

Preparation for the major. Drama 40, 50, or Telecommunications and Film 20, Telecommunications and Film 3, 56, and 83. (15 units.)

Major. A minimum of 24 upper division units to include Drama 101, 140A, 140B, 148, 152A or Telecommunications and Film 180, Telecommunications and Film 150, 156, and 162 or 184.

For the Standard Teaching Credential, with Specialization in Secondary Teaching

Preparation for the major. Drama 30, 31, 40, 50, and Telecommunications and Film 1 or 70. (15 units.)

Note: Drama 5 and 10 should be taken as part of the General Education requirements.

Teaching major (undergraduate). A minimum of 24 upper division units to include Drama 120, 127A, 128, 132, 140A, 160A, 160B, and five units of electives in drama (except Drama 142 and 199) selected with the approval of the adviser.

Postgraduate Year. Six upper division or graduate units selected from the following: Drama 109, 121, 122, 131, 145A-145B, 148, 152A, or any 200-numbered course in drama with the approval of the adviser.

Minor

The minor in drama for the bachelor's degree and for the standard teaching credential consists of 21 units in drama to include Drama 5, 30 or 31, 40, 50, and nine upper division units in drama.

5. Introduction to the Theatre (3) I, II

A survey of theory and practice in the contemporary theatre, including its literary, critical, and technical aspects viewed against historical backgrounds. Attendance at selected rehearsals and performances required. (Formerly numbered Speech Arts 5.)

8. Verse Choir (2) I, II

Three hours.

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and readings on the nature, artistic function and history of the Verse Choir. Maximum credit four units, including lower division and upper division courses 8 and 108. (Formerly numbered Speech Arts 63.)

10. Voice and Diction (3) I, II

Exercises and drills to improve the quality, flexibility and effectiveness of the speaking voice leading to good usage in standard American speech. Preparatory to further courses in drama. (Formerly numbered Speech Arts 1.)

30. Elementary Acting (3) I, II

Three lectures per week and 30 hours of laboratory per semester.

Development of the individual's ability to express thought and emotion through the effective use of the voice and body. These fundamental skills may be applied to stage, radio, and television acting. (Formerly numbered Speech Arts 55A.)

31. Intermediate Acting (3) I, II

Three lecture-demonstrations per week and 30 hours of laboratory per semester.

Prerequisite: Drama 30.

Continuation of Drama 30, emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting. (Formerly numbered Speech Arts 55B.)

32. Movement and Mime for the Theatre (3) I

Basic disciplines of locomotor and axial body movement for the stage director and actor; introduction to mime. The relationship between body expression and character portrayal. (Formerly numbered Speech Arts 32.)

40. Dramatic Production (3) I, II

Two lectures and three hours of laboratory.

Technical practices and organization of production for theatre and television. Practice in drafting and construction of scenery for the college productions. (Formerly numbered Speech Arts 56.)

47. Sound in the Theatre (2) I

One lecture and three hours of laboratory.

Techniques, theory, and procedures necessary to develop sound, music, and effects integrated into theatre production. (Formerly numbered Speech Arts 57.)

50. Elementary Stage Costume and Makeup (3) I

Two lecture-demonstrations and three hours of activity.

Principles and application of makeup for stage, film, and television. Pattern drafting, draping, color harmony and use of fabrics for stage costuming. Practical training in the construction of stage costumes and application of makeup for departmental productions. (Formerly numbered Speech Arts 8.)

101. Management of Drama Activities (1) I, II

Planning, preparation, management and supervision of drama tournaments, festivals and other interscholastic and intrascholastic activities under the supervision of the drama staff. Maximum credit two units. (Formerly numbered Speech Arts 101.)

108. Advanced Verse Choir (2) I, II

Three hours.

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and reading on the nature, artistic function and history of the Verse Choir, with a written report or project. Maximum credit four units, including lower division and upper division courses, 8 and 108. (Formerly numbered Speech Arts 163.)

109. Verse Choir Directing (2 or 3)

Organizing a given group as a Verse Choir, considering age, voice quality, background, selection and arrangement of material, and techniques of directing. Demonstration and practice of techniques to improve speech through the Verse Choir. (Formerly numbered Speech Arts 164.)

110. Creative Dramatics (2) I, II

Practical training in the principles and techniques of creative dramatization for work with children in the classroom and recreation. Emphasis on the development of the child emotionally and socially through dramatic improvisation. (Formerly numbered Speech Arts 110.)

120. Play Analysis (3) I, II

The structure and style of drama. Several short plays and one full-length play are read, discussed and analyzed. (Formerly numbered Speech Arts 118A.)

121. Theatre Criticism (3) I

Prerequisites: Drama 5 and 120.

A consideration of the problems and practices of dramatic criticism as applied to theatrical production in the past and present. (Formerly numbered Speech Arts 116.)

122. Playwriting, the One-Act Play (3) I, II

Lectures, discussion and reading of one-act plays written by the students. (Formerly numbered Speech Arts 118B.)

123. Playwriting, the Long Play (3) II

Prerequisite: Drama 122.

Lectures and analytical discussions of full-length plays written by students. (Formerly numbered Speech Arts 128.)

124. Script Writing for the Musical Theatre (3) I

Prerequisite: Drama 122.

Lectures, analytical discussions, and readings of one-act and full-length scripts written for the musical stage by students.

125. Original Dramatic Works: Production Laboratory (3) II

Nine hours of laboratory.

Prerequisites: Drama 30, 31, and consent of instructor.

Staging of original one-act and full-length plays, in traditional and experimental productions, working in conjunction with the students in the playwriting and directing classes. (Formerly numbered Speech Arts 126.)

126. Theory of Production for the Musical Stage (3) I

Prerequisites: Drama 31 and consent of instructor. Theory and principles of production of modern musicals. (Formerly numbered Speech Arts 125.)

127A-127B. Stage Direction (3-3) I, II

Prerequisite: Drama 127A is prerequisite to 127B.

Planned for prospective directors of plays in schools, colleges and community theatres.

A. Composition, picturization and movement for the stage director.

B. Advanced problems of composition and motivations for movement.

(Formerly numbered Speech Arts 159A-159B.)

128. Stage Direction Laboratory (1) I, II

Prerequisites: Credit or current registration in Drama 127A or 127B.

Experience in directing a one-act play before a departmental or public audience. Maximum credit two units. (Formerly numbered Speech Arts 160.)

130. Accents and Dialects for the Stage (3) II

Prerequisite: Drama 30.

Various accents and dialects most frequently occurring in stage productions.

131. Advanced Acting Theory (3) I, II

Prerequisite: Drama 30 or 31.

The theories and principles of acting. (Formerly numbered Speech Arts 153.)

132. Advanced Acting (3) I, II

Prerequisite: Drama 31.

Problems in characterization: Acting styles of the great periods in theatre history. (Formerly numbered Speech Arts 155.)

140A. Scenic Design (3) I

Prerequisite: Drama 40.

Techniques and procedures in the application of principles of design, color and perspective in the designing and painting of scenery for various types of productions for stage, television and cinema. (Formerly numbered Speech Arts 140A.)

140B. Styles in Scenic Design (3) II

Prerequisite: Drama 140A.

History of scenic design and the application of contemporary styles to various types of dramatic production for stage, television and cinema. (Formerly numbered Speech Arts 140B.)

142. Theatre Workshop (2) I, II S (3 or 6)

Two hours of activity per unit.

A laboratory to give the student a variety of experience in the theatre including acting, lighting, scenery, costumes and stage management. Maximum credit six units. (Formerly numbered Speech Arts 142.)

145A-145B. Stage Lighting (3-3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Drama 145A is prerequisite to 145B.

Light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays. (Formerly numbered Speech Arts 145A-145B.)

148. Advanced Dramatic Production (3)

Two lectures and three hours of laboratory.

Prerequisite: Drama 40.

Scenery drafting and construction, with attention to the multiple-set play. Planning of scenery construction and rigging for stage and television productions. (Formerly numbered Speech Arts 156.)

151. Costume, Movement, and Manners (3) I

Prerequisite: Drama 50.

Interrelationship of period costumes on the movement and manners of the time and their application on the stage. (Formerly numbered Speech Arts 151.)

152A-152B. History of Costume (3-3) I, II

Two lectures and three hours of laboratory.

Costume from primitive times to the present; use of historical costumes on the stage. (Speech Arts 152B may be taken without 152A.)

A. From primitive times to 16th century.

B. 16th century to 20th century.

(Formerly numbered Speech Arts 152A-152B.)

160A-160B. History of the Theatre (3-3) I, II

The theatre from primitive times to the present. Special attention will be given to the theatre as a mirror of the social and cultural background of the various countries and periods in which it is studied. Drama 160B may be taken without 160A. (Formerly numbered Speech Arts 154A-154B.)

165. History of American Theatre (3) I, II

Prerequisites: Drama 160A or 160B, and consent of instructor.

American theatre and drama from Colonial times to the present day. Readings of plays and primary documents. Social and cultural background. (Formerly numbered Speech Arts 158.)

175. Theatre Management and Promotion (3) I, II

A practical and correlated study of the college and university theatre; principles of organization, programming, production, budgets, box office, and promotional procedures.

198. Selected Topics in Drama (1-3) I, II

Prerequisite: Twelve units in Drama.

A specialized study of selected topics from the areas of drama. May be repeated with new content. Maximum credit six units.

200. Research and Bibliography (3)**243. Seminar in Staging Practices for Theatre and Television (3)****244. Seminar in Stage Direction (3)****245. Seminar in Lighting for Stage and Television (3)****246. Seminar in Design for Stage and Television (3)****247. Seminar in History of Theatre and Drama (3)****248. Seminar in Dramatic Theory (3)****298. Special Study (1-3)****299. Thesis or Project (3)**

Economics

In the College of Arts and Letters

Faculty

Emeritus: Cameron, Ryan

Professors: Anderson, Babilot, Barckley (Chairman), Bridenstine, Flagg, Gifford, Leasure, McClintic, Turner, M.S.

Associate Professors: Chadwick, Clement, Madhavan, Poroy, Venieris

Assistant Professors: Bohmer, Jambleton, Hardesty, Kartman, Kudoh, Nam, Phatak, Popp, Sebold

Lecturer: Ellsworth

Offered by the Department

Master of Arts degree in economics.

Major in economics with the A.B. degree in liberal arts and sciences.

Minor in economics.

Teaching major in economics, with specialization in secondary teaching.

Teaching minor in economics, with specialization in secondary teaching.

Major

With the A.B. Degree in Liberal Arts and Sciences

Two plans are provided for the major in economics: Plan A for those students expecting to pursue the study of economics beyond the A.B. degree; and Plan B for those students with a liberal arts interest, or for those who are interested in pre-legal education or a combined economics-business program.

Plan A

Preparation for the major. Economics 1A-1B (or 103A-103B) and 2. Recommended courses in related fields: Mathematics 40 and 50.

Major. A minimum of 24 upper division units in economics to include Economics 104A-104B, 107, and 141. Economics 103A-103B may not be used to fulfill minimal upper division requirements.

Minor. A minor is not required with this major; however, the student is strongly advised to take a minor in mathematics. Recommended courses are Mathematics 40, 50, 51, 52, 121A-121B, 140A-140B, and 150A-150B.

Plan B

Plan B is a flexible program to meet the needs of several groups of students. Advisory programs of study are available in the Economics Department office for the following groups: (a) pre-law majors; (b) a broad-ranging liberal arts interest; and (c) a combined economics and business interest.

Preparation for the major. Economics 1A-1B (or 103A-103B), and 2. Students planning careers in law or business are advised to take at least one semester of accounting.

Major. A minimum of 24 upper division units in economics to include Economics 100A-100B. Six of the 24 units may be in a related field to be selected with the approval of the departmental Academic Requirements Committee. (Economics 103A-103B may not be used to fulfill minimal upper division requirements in the major.)

For the Standard Teaching Credential With Specialization in Secondary Teaching

Preparation for the major. Economics 1A-1B or 103A-103B, and 2. (9 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in economics to include Economics 100A-100B. Economics 103A-103B may not be used to fulfill minimal upper division requirements in the major.

Postgraduate Year. Six units of graduate courses in economics to be selected with the approval of the department adviser.

Minor

The minor consists of 15 units in economics, nine of which must be upper division; Economics 103A-103B is not acceptable.

For the standard teaching credential for secondary teaching, it consists of 21 units in economics, to include Economics 1A-1B or 103A-103B, and 15 upper division units in economics courses selected with approval of the departmental adviser.

1A. Principles of Economics (3) I, II

An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon macro-analysis including national income analysis, money and banking, business cycles, and economic stabilization. Not open to students with credit in Economics 103A.

1B. Principles of Economics (3) I, II

Prerequisite: Economics 1A.

An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon the direction of production, the allocation of resources, and the distribution of income, through the price system (micro-analysis); and international economics. Not open to students with credit in Economics 103B.

2. Statistical Methods (3) I, II

Prerequisite: Mathematics 3 or qualification on the Mathematics Placement Examination.

Introduction to descriptive statistics, statistical inference, correlation, index numbers, and time series. Not open to students with credit for, or concurrent enrollment in, another course in statistics.

3. Current Topics in Economics (3) I

A non-technical course covering selected current policy issues and problems such as poverty, war and defense, educational economics, urban problems, and economics of racial discrimination.

100A. Intermediate Economic Theory (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic theory with special reference to the theory of the firm and the industry; value and distribution.

100B. Intermediate Economic Theory (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic theory with special reference to national income analysis and the theory of investment.

101. History of Economic Thought (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The development of economics. Contributions of schools of thought and individual writers are examined with regard to their influence on economic theory and policy.

102. Comparative Economic Systems (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The economic aspects of laissez-faire and regulated capitalism, co-operatives, socialism, communism, nazism, fascism. Experience in Russia, Germany, United States, Great Britain. Criteria for evaluating economic systems. The individual and government in each system. Planning in a liberal capitalistic society.

103A. Economic Principles, Institutions, and Policies (3) I, II

Prerequisite: Six units in political science, history, or sociology.

Income and employment theory and its applications. Not open to students with credit in Economics 1A. May not be used to fulfill minimal upper division requirements in the economics major or minor or special major.

103B. Economic Principles, Institutions, and Policies (3) I, II

Prerequisite: Economics 103A or 1A.

Price theory and its applications. Not open to students with credit in Economics 1B. May not be used to fulfill minimal upper division requirements in the economics major or minor or special major.

104A. Micro-Economic Analysis (3) I

Prerequisites: Economics 1A-1B (or 103A-103B) and Math 50.

Mathematical interpretation of micro-economic theory. Credit will not be given for both 100A and 104A.

104B. Macro-Economic Analysis (3) II

Prerequisites: Economics 1A-1B (or 103A-103B) and Math 50.

Mathematical interpretation of macro-economic theory. Credit will not be given for both 100B and 104B.

105. Welfare Economics (3) II

Prerequisites: Economics 1A and 1B, or 103A and 103B, and 100A.

Theories of individual and social well-being; economic and ethical bases of optimum welfare arrangements; individual values and social decision-making; tests of improvement; interdependence and externalities; public and private sectors; properties of social welfare functions.

107. Quantitative Economics (3) I, II

Prerequisites: Math 50 and Economics 1A-1B (or 103A-103B).

The quantitative approach to economic problems. The use of mathematics in economic analysis.

109. Advanced Economic Theory (3) II

Prerequisites: Economics 107, and either 100A-100B or 104A-104B.

Recent contributions to the advanced theory of the firm, consumer demand, employment and growth.

110. Economic History of Europe (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic development from the Middle Ages to the present. Particular attention is given to the impact of the Industrial Revolution on national economics, especially on England's commerce and industry.

111A-111B. Economic History of the United States (3-3)

Prerequisites: Economics 1A and 1B or 103A and 103B.

American economic development and national legislation in the fields of agriculture, industry, and commerce. Semester I: 1600-1865. Semester II: 1865 to the present.

112. Capitalist Economy (3)

Prerequisite: three units in economics.

The relationship between the dominant economic and political institutions of capitalist organization and the major social problems of modern capitalism.

114. Economic Problems of Latin America (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic development, institutions, and problems of Latin America.

115. Economic Problems of South and East Asia (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic development, institutions, and problems of China, India and Pakistan, Japan, and Southeast Asia.

118. The Economies of the Soviet Union and Eastern Europe (3)

Prerequisites: Economics 1A and 1B, or 103A and 103B.

The development, institutions, and problems of the Soviet and East European economies.

119. Economic Problems of Africa and the Middle East (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic development, institutions, and problems of Africa and the Middle East.

131. Public Finance (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Principles and practices of taxation and public expenditures. Economic effects of public spending, debts and taxation. Financing social security and other services. Fiscal policy and prosperity. Relation to inflation and deflation. Special emphasis on social problems involved.

132. Public Economics (3)

Prerequisites: Economics 100A or 131.

General equilibrium. Externalities of consumption and production, their impact on allocative efficiency. Theory of social wants and public goods supply. Theoretical treatment of individual and community preference ordering and decision-making. Proposals for improving the allocation of resources.

135. Money and Banking (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The elements of monetary theory. History and principles of banking with special reference to the banking system of the United States.

136. Policies for Macroeconomic Stabilization (3)

Prerequisite: Economics 1A or 103A.

Alternative policies for macroeconomic stabilization, including neo-Keynsian, Chicago, radical, and ecological views. Topics include GNP forecasting, dynamic models, monetary vs. fiscal tools, economic surplus, and zero GNP growth.

138. Urban and Regional Economics (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Major influences affecting city location and growth; role of private and governmental institutions in influencing residential and other uses of land; major considerations in appraising, managing, financing, marketing, developing and taxation of urban property. Discussion of San Diego problems.

139. Location Theory (3)

Prerequisite: Economics 138.

The optimal location of economic activities. The effects of spatial distribution of resources and markets on the locational equilibrium of the firm.

141. Econometrics (3)

Prerequisites: Economics 2 and 107.

Measurement in economics. The construction and testing of simple economic hypotheses. Use of economic models involving multiple-regression analysis.

142. Business Cycles (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Fundamental factors in economic fluctuations. Examination of business cycle theories, and various policy proposals for economic stabilization. A consideration of current economic conditions and an examination of methods employed in preparing national economic forecasts.

150. Labor Problems (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Labor organizations and their policies, wages, strikes, unemployment, social insurance, child labor, labor legislation, plans for industrial peace, and other labor problems.

152. Collective Bargaining (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Structures of labor relations; management and union problems; public policy and collective bargaining; conditions of successful collective bargaining.

153. Comparative Labor Problems (3) I

Prerequisite: Economics 1A and 1B or 103A and 103B.

Comparative study of labor relations systems and labor movements in both advanced and developing nations. Individual study of a particular country of the student's choice.

154. Economic Aspects of Human Resources (3) I, II

Prerequisites: Economics 1A and 1B, or 103A and 103B.

A theoretical analysis of health, education, and manpower within the context of government expenditure, economic growth, and the theory of human capital.

167. Contemporary Issues (3) I, II

Prerequisites: Economics 100A and 100B.

Current policy issues and problems from an economic point of view. Maximum credit six units. An undergraduate seminar.

170. Government and Business (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Governmental activities affecting business; the state as an entrepreneur and manager; governmental assistance to business; governmental regulation of business in its historical, legal and economic aspects, including recent developments in the United States and abroad; proposed policies.

171. Transportation Economics (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic impact of the availability and cost of transportation services. Organization, rate-making practices, financing and regulation of transportation agencies: air, surface, and water. Current issues of national transportation policy.

172. Public Utilities (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economics and regulation of utility enterprises. Growth, pricing, demand and cost behavior, financing, regulatory principles and techniques. Public power and other current policy issues.

173. Economics of Ecology (3) II

Prerequisites: Economics 1A and 1B, or 103A and 103B.

Relation of ecological problems to basic economic institutions. Examination of the apparent conflict between economic needs and ecological requirements. Economics of air, fresh water, ocean and land pollution, overpopulation and natural resource utilization. Investigation of possible solutions.

174. Economic Concentration and Monopoly Power (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

The implications of economic concentration and monopoly. The evaluation of mergers, consolidations and other forms of monopoly power in terms of social and economic goals. Attempts to control monopoly power by antitrust laws, by policies regarding competitive practices and by other means.

175. Industry Studies (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Evaluation of the structure, conduct and performance of selected industries in terms of social and economic goals.

185. Poverty in the United States (3) II

Prerequisites: Economics 1A and 1B, or 103A and 103B.

Economic aspects of poverty and racial discrimination. Relation of poverty to the general economic structure and to macroeconomic conditions such as unemployment and inflation. Possible solutions.

189. Population and Economic Growth (3)

Prerequisites: Economics 1A-1B or 103A-103B.

Interrelationship between the components of population change (fertility, mortality, and migration) and economic growth in developed and underdeveloped areas.

190. International Economic Problems (3)

Prerequisites: Economics 1A-1B or 103A-103B. Not open to students with credit in Economics 191 or 192.

International problems, economic communities, organizations, and other selected topics. (Formerly numbered Economics 192.)

191. International Trade Theory (3)

Prerequisites: Economics 100A-100B or 104A-104B.

The pure theory of international trade and commercial policy. (Formerly numbered Economics 190.)

192. International Monetary Theory and Policy (3)

Prerequisites: Economics 100B or 104B or 135.

Balance of payments, international capital movements and foreign exchange in relation to current theories and policies. (Formerly numbered Economics 191.)

194. Capital and Growth Theory (3)

Prerequisites: Economics 100A-100B or 104A-104B.

Factors affecting the capital supply and the rate of growth of a developed economy.

195. Economics of Underdeveloped Areas (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The nature and causes of economic underdevelopment. Problems of and policies for the economic development of underdeveloped areas of the world. Formerly numbered Economics 196.

197. Research Design and Method (3) II

Prerequisites: Economics 2 and 107.

Instruction in the practical application of the various techniques of economic research to a range of problems typically encountered in the economics profession; sources and limitations of basic data, survey research, industry studies, economic forecasting, national impact studies, area and regional studies.

198. Investigation and Report (3) I, II

Open to economics majors only.

Independent study and investigation. Guidance in the collection, organization, and presentation of factual material. May be repeated for a maximum of six units; maximum credit in 198 and 199 limited to six units.

- 200A. Seminar in Advanced Economic Theory (3)
- 200B. Seminar in Advanced Economic Theory (3)
- 201A-201B. Seminar in the Development of Economic Thought (3-3)
- 202. Seminar in Comparative Economic Systems (3)
- 203. Economic Analysis (3)
- 206. The Public Economy (3)
- 208. Development Planning (3)
- 210. Seminar in Economic History (3)
- 231. Seminar in Public Finance (3)
- 235. Seminar in Monetary Economics (3)
- 238. Seminar in Urban and Regional Economics (3)
- 241. Seminar in Econometrics (3)
- 250. Seminar in Labor Economics (3)
- 253. Comparative Labor Seminar (3)
- 272. Seminar in Utilities and Water Resources (3)
- 274. Seminar in Economic Concentration and Monopoly Power (3)
- 290. Bibliography (1)
- 292. Seminar in International Economics (3)
- 295. Seminar in the Economics of Underdeveloped Countries (3)
- 297. Research (3)
- 298. Special Study (1-3)
- 299. Thesis (3)

Education

See "School of Education" in the catalog section Professional Schools:
Courses and Curricula.

Engineering

See "School of Engineering" in the catalog section Professional Schools:
Courses and Curricula.

English

In the College of Arts and Letters

Faculty

Emeritus: Adams Burnett, Dickhaut, Gulick, Johnson, F., Keeney, Kennedy, Marchand, Theobald

Professors: Baker, J., Carrier, Dickinson, J., Frey, Gellens, Gross, Haskell, Lehmann, Monteverde, Ollier, Perkins, Phillips, Sanderlin, Sandstrom, Shouse, Tidwell, Tozer (Acting Chairman), Vanderbilt, Wanlass, Widmer

Associate Professors: Benson, Hendrickson, Henig, Ingham, Keller, Rauber, Redding, M., Santangelo, Seright, Taylor, H.

Assistant Professors: Aninger, Barry, Boe, Brashers, Butler, Chater, Crane, Davis, G., Donahue, Drake, Forrey, Gervais, Hinkle, Karnath, Kehler, D., Kehler, H., Kohler, McCoy, C., McLeod, Moramarco, Nelson, T., Nichols, P. S., Patterson, Redding, R., Rogers, W. N., Rother, J., Sarfatt, Savvas, Stiehl, Sullivan, Taft, Thrane, Tunberg, Wheeler

Instructor: Fahy

Lecturers: DeMarinis, Farber

Offered by the Department

Master of Arts in English.

Major in comparative literature with the A.B. in liberal arts and sciences.

Major in English with the A.B. in liberal arts and sciences.

Minor in comparative literature.

Minor in English.

Teaching major in English, with specialization in both elementary and secondary teaching.

Teaching minor in English, with specialization in both elementary and secondary teaching.

Comparative Literature Major

See "Interdisciplinary and Preprofessional Programs" in the catalog section Degrees and Programs.

English Major

With the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. English 6, 51A-51B; six units selected from English 52A, 52B, 53A, and 53B; and three units of electives in English excluding 1X, 1Y, or 1Z. (18 units.)

Major. A minimum of 24 upper division units in English, selected with the approval of the adviser, to include (a) English 101 (b) at least nine units in one of the areas of study listed below and (c) at least three units in British Literature before 1800, three units in British Literature after 1800, and three units in American Literature. The same course may be used to satisfy requirements under both (b) and (c). No more than six units of courses in Comparative Literature may be included as part of the major in English.

Areas of Study:

British Literature before 1800: English 102, 103, 104, 111, 112, 113A, 113B, 121A, 122A, 122B, and Comparative Literature 120.

British Literature after 1800: English 114A, 114B, 115, 116, 117, 118, and 121B.

American Literature: English 130, 131, 133, 134, 135, and 136.

Modern Literature: English 116, 117, 118, 134, 135, and 136.

Literary Types, Theory, and Criticism: English 140, 142, 144, 150, 153, and Comparative Literature 124, 125, 126, 150, 152A–152B, and 153A–153B.

Creative Writing: English 170, 171, and 172.

English Linguistics: English 175, 180, 181, 182, 183, 184, and General Language 196.

NOTE: In addition to the courses listed above, appropriate sections of English 129, 138, 139, 149, 190, and 199 may be used to satisfy the requirements for the major if approved by the departmental adviser.

Selection of Courses

Prospective majors of sophomore standing may, with the consent of the course instructor and subject to general college regulations (see “Credit for Upper Division Courses” in the section of the catalog on General Regulations), substitute six units of upper division electives for six units of lower division work. These courses must be in the same field as those which they replace, and must be approved by the departmental adviser.

Students of junior or senior standing may substitute for any deficiencies in lower division requirements in English (except English 6) an equivalent number of units of upper division courses selected with the approval of the departmental adviser.

Comparative Literature Minor

The minor consists of 15 units in comparative literature, nine of which must be upper division.

English Minor

The minor consists of 15 units in English, nine of which must be upper division.

English Major

For the Standard Teaching Credential

Specialization in Elementary Teaching

Preparation for the major. English 6, 51A–51B; six units selected from English 52A, 52B, 53A, and 53B; and three units of electives in English excluding 1X, 1Y, or 1Z. (18 units.)

Teaching Major. A minimum of 24 upper division units in English selected with the approval of the adviser, to include (a) English 101; (b) at least one course from English 102, 103, 104, 111, 112, 113A, 113B, 121A, 122A, 122B, and Comparative Literature 155; (c) at least one course from English 114A, 114B, 115, 116, 117, 118, and 121B; (d) at least one course from English 130, 131, 133, 134, 135, and 136; (e) at least one course from English 175, 180, 181; (f) at least three courses (which may include courses taken under b, c, d, and e above) in one of the seven areas of study listed above for the English Major with the A.B. degree in Liberal Arts and Sciences.

Education 133 is required in addition to the major.

Specialization in Secondary Teaching

Preparation for the major. English 6, 51A–51B; six units selected from English 52A, 52B, 53A, and 53B; and three units of electives in English excluding 1X, 1Y, or 1Z. (18 units.)

Teaching Major. (Undergraduate). A minimum of 24 upper division units in English selected with the approval of the adviser, to include (a) English 101; (b) at least one course from English 102, 103, 104, 111, 112, 113A, 113B, 121A, 122A, 122B, and Comparative Literature 155; (c) at least one course from English 114A, 114B, 115, 116, 117, 118, and 121B; (d) at least one course from English 130, 131, 133,

134, 135, and 136; (e) at least one course from English 175, 180, 181; (f) at least three courses (which may include courses taken under b, c, d, and e above) in one of the seven areas of study listed above for the English Major with the A.B. degree in Liberal Arts and Sciences.

In addition to the major, Education 122 and a second course selected from English 175, 180, or 181 must be taken before graduation as requirements for the credential but not for the degree.

Postgraduate year. Six units of upper division or graduate courses in English.

English Minor

For the Standard Teaching Credential

The minor in English for elementary teaching consists of 20 units in English, nine of which must be upper division. The minor in English for secondary teaching consists of 21 units, to include: six units from English 51A-51B, 52A-52B, 53A-53B, 54, and 65; and six units selected from English 175, 180, or 181; and nine units in literature courses (English 101-173). Education 122 is also required.

Course Sequences

All year courses in comparative literature and in English may be taken in either semester, and either semester may be taken singly for credit. English 5 is prerequisite to all higher numbered English courses except 6.

Student Initiated Courses

Students may petition for a course which falls within the competency of the English Department but which is not among the regular course offerings for the present or following semester. Petition forms may be obtained from the Department Secretary.

Undergraduate Proseminars

Each semester, if adequate staffing permits, the Department may offer several of its courses as special, limited-enrollment proseminars. These proseminars are designed to give English majors (or any one who has the consent of the instructor) the opportunity as juniors and seniors to engage in advanced work in small discussion groups.

English for Foreign Students

Foreign students will be assigned to English 1X, 1Y, 1Z or to English 5 or 6 on the basis of their performance on the English examination for foreign students and an oral interview. 1X, 1Y, and 1Z do not satisfy the college general education requirements, but unit credit is granted for these courses.

R. Reading Laboratory (0) I, II

A semitutorial service for students wishing to improve reading ability or secure individual help with study problems. Open to students at any level of college work.

S. Spelling (0) I, II

A semitutorial service for students wishing to improve their spelling through an intensive review of principles and practice. Open to students at any level of college work.

W. Writing Laboratory (0) I, II

A semitutorial service for students wishing assistance in composition, either remedial or advanced. Open to students at any level of college work.

1X. Fundamentals of English for Foreign or Bilingual Students (3) I, II

A first course in English grammar and composition with intensive practice in the Language Laboratory. Satisfactory completion of this course qualifies a student to take English 1Y or, at the discretion of the instructor, English 1Z, 5 or 6.

1Y. English for Foreign or Bilingual Students (3) I, II

Prerequisite: English 1X.

English grammar and composition. Satisfactory completion of this course qualifies a student to take English 1Z or, at the discretion of the instructor, English 5 or 6.

1Z. English for Foreign or Bilingual Students (3) I, II

Prerequisite: English 1Y.

English grammar and composition. A continuation of English 1Y for students who need additional instruction and writing practice. Satisfactory completion of this course qualifies a student to take English 5 or 6.

5. Composition and Reading (3) I, II

Formerly English 3.

Practice in composition based on the study of outstanding expository writing in contemporary affairs, the sciences, and the arts. Not open to students with credit for Mexican-American Studies 2B.

6. Composition and Literature (3) I, II

Formerly English 1.

Practice in composition, based on the study of representative works of imaginative literature. Introduction to one or more of the major literary genres: poetry, drama, and fiction.

51A–51B. English Literature (3–3) I, II

English literature from the Anglo-Saxon period to the present, with emphasis on the major works in the literary tradition. Semester I: Ends with the neo-classical period. Semester II: Begins with the Romantic writers. (Formerly numbered English 56A–56B.)

52A–52B. World Literature (3–3) I, II

Major works from Homer to modern times. Semester I: Classical and medieval literature. Semester II: The Renaissance to modern times. Not open to students with credit in Comparative Literature 52A–52B.

53A–53B. American Literature (3–3) I, II

Semester I: Major American writers from the beginning to 1860. Semester II: American literature from 1860 to the present. (Formerly numbered English 50A–50B.)

54. Literary Theory and Criticism (3) I, II

Introduction to the various theories of literature and approaches to literary creation and criticism.

65. Language Study (3) II

Introduction to the principles and practice of modern linguistics as applied to the study of English.

70. Creative Writing (3) I, II

Introduction to the theory and practice of writing in the major genres, with emphasis on basic concepts and techniques. (Formerly numbered and entitled: English 61, Sophomore Composition.)

71. Creative Writing: Selected Genres (3) I, II

Prerequisite: English 70.

Guidance and extensive practice in writing in one or more of the major genres: poetry, drama, fiction, or the essay. (Formerly numbered and entitled: English 62, Directed Writing.)

89. Studies in Literature (1–3) I, II

Representative literary works of a major author, period, genre, theme, or the like. May be repeated with new content. Maximum credit six units. (Formerly numbered and entitled: English 10, Individual Reading.)

101. Shakespeare (3) I, II

An introduction to the writings of Shakespeare. (Formerly numbered English 117A-117B.)

102. Study of Shakespeare (3) II

Prerequisite: English 101.

Advanced study of Shakespeare's achievement as a poet and playwright.

103. Chaucer (3) I, II

Chaucer's works, with emphasis on *The Canterbury Tales* and *Troilus and Criseyde*. (Formerly numbered English 151.)

104. Milton (3) II

Milton's writings, with emphasis on *Paradise Lost*. (Formerly numbered and entitled: English 120A, The Seventeenth Century: Milton.)

105. The Bible as Literature (3) I, II

Same course as Comparative Literature 105.

Prose and poetry of the King James version. (Formerly numbered English 115.)

111. Renaissance Literature (3) I, II

English poetry and prose from 1485 to 1603. (Formerly numbered and entitled: English 116A, The Age of Elizabeth.)

112. Seventeenth Century Literature (3) II

English poetry and prose from 1603 to 1660. (Formerly numbered and entitled: English 120B, The Seventeenth Century: Metaphysical and Cavalier Poets.)

113A-113B. Restoration and Eighteenth Century Literature (3-3) I, II

English literature in the neo-classical era. Semester I: Dryden, Swift, Pope, and their contemporaries. Semester II: Writers of the middle and late eighteenth century. (Formerly numbered English 118A-118B.)

114A-114B. Nineteenth Century British Poetry (3-3) I, II

Semester I: The Romantic movement. Semester II: The Victorian period. (Formerly numbered and entitled, English 119A, English Romantic Poetry; English 119B, Victorian Poetry.)

115. Nineteenth Century British Prose (3) I, II

Non-fictional prose of the Romantic and Victorian periods. (Formerly numbered and entitled: English 126A, Romantic and Victorian Prose; and English 126B, Late Nineteenth Century British Prose.)

116. Modern British Poetry (3) I, II

British poetry since 1900.

117. Modern British Fiction (3) I, II

British fiction since 1900.

118. Modern British Drama (3) I, II

British drama since 1890.

121A-121B. English Fiction (3-3) I, II

The development of English fiction from its beginnings to the end of the nineteenth century. Semester I: The eighteenth century. Semester II: The nineteenth century. (Formerly numbered and entitled: English 143A-143B, The English Novel.)

122A-122B. English Drama (3-3) I, II

English dramatic literature from its beginnings to the nineteenth century. Semester I: The period from the beginning to 1642. Semester II: The period following re-opening of the theatres in 1660.

129. Topics in English Literature (3) I, II

The Works of Spenser, The Metaphysical School of Poetry, The English Satirists, and Major Movements in Contemporary English Fiction, and the like. May be repeated with new content. Maximum credit six units.

130. Early American Literature (3) I

American Literature from its beginning to 1830.

131. The American Renaissance (3) I, II

Major American writers and their works in the period 1830–1865.

133. American Realism and Naturalism (3) I, II

American fiction from the Civil War to 1920.

134. Modern American Fiction (3) I, II

American fiction from 1920 to the present.

135. Modern American Poetry (3) I, II

American poetry from 1865 to the present.

136. American Drama (3) I, II

Dramatic literature by American writers from its beginnings to the present.

138. Topics in American Studies (3) I, II

American Folklore, The Literature of Social Protest, The Intellectual History of American Literature, and the like. May be repeated once with new content, and more than once by American Studies majors with the approval of their advisers.

139. Topics in American Literature (3) I, II

Emerson and Thoreau, Black Writers in America, The Literature of the American South, The Frontier and American Literature, and the like. May be repeated with new content. Maximum credit six units.

140. Poetry (3) I, II

The study of poetry as a genre; theory and practical criticism. (Formerly numbered English 149.)

142. Fiction (3) I, II

The study of fiction as a genre; theory and practical criticism. (Formerly numbered English 148.)

144. Drama (3) I

The study of drama as a genre; theory and practical criticism.

149. Topics in the Study of Literary Genres (3) I, II

The study of particular aspects, techniques, or themes in one or more literary genres, such as Myth and Symbol in Poetry, The Nature of Tragedy, The Theater of the Absurd, The Hero in Fiction, Ideas and Forms in Modern Non-Fictional Prose, and the like. May be repeated with new content. Maximum credit six units.

150. The History of Literary Criticism (3) I

Principles and practices of literary criticism from Greek times to the nineteenth century. (Formerly numbered English 195A.)

153. Modern Criticism (3) II

The theory and practice of selected nineteenth and twentieth century critics, with emphasis on the distinctive features of their approaches to literature. (Formerly numbered and entitled: English 195B, Theory and Practice of Modern Criticism.)

170. The Writing of Poetry (3) I, II

Prerequisite: English 70.

A writing workshop in poetry. May be repeated with new content. Maximum credit six units.

171. The Writing of Fiction (3) I, II

Prerequisite: English 70.

A writing workshop in fiction. May be repeated with new content. Maximum credit six units.

172. The Writing of Non-Fiction (3) I

Prerequisite: English 70.

A writing workshop in non-fictional prose. May be repeated with new content. Maximum credit six units.

175. Advanced Composition (3) I, II

The theory and practice of expository writing, including the contributions of semantics, rhetoric, and logic. (Formerly numbered English 191.)

180. The English Language (3) I, II

The history of English and its present-day use. (Formerly numbered English 192.)

181. The Structure of English (3) I, II

The structure of modern English, including the various approaches to linguistic analysis. (Formerly numbered English 193.)

182. American English (3) I

The development of American English; regional and cultural differences in pronunciation, grammar, and vocabulary. (Formerly numbered English 113.)

183. English Linguistics (3) II

Prerequisite: Open only to seniors and graduate students who have had English 180, or 181, or General Language 196.

Advanced study of linguistic theory and its application to the analysis of English. (Formerly numbered English 197.)

184. Phonemics and Morphemics (3) I, II

The study of procedures for arriving at the phonetic inventory of languages and the structuring of sound units (both linear and intonational) into phonemic systems; the study of morphemic hierarchies and their arrangements in forming words.

190. Selected Topics in English (2-3) I, II

Specialized study of a selected topic in literature or linguistics. May be repeated with new content. Maximum credit six units.

194. Individual Reading (1) I, II

Selected works by a major author. May be repeated with new content. Maximum credit two units. (Formerly numbered English 110.)

198. Comprehensive Reading and Survey (3) II

Prerequisite: Nine units of upper division work in English.

A study of major movements in English literature through a review of important writers and key works. Individual programs of readings to fill the needs of each student.

220. Indo-European (3)**223. Old English (3)****224. Middle English (3)****233. American Literature (3)****234. Literature of the Middle Ages (3)****235. Renaissance Literature (3)****236. Restoration and Eighteenth Century Literature (3)****237. Earlier Nineteenth Century Literature (3)**

- 238. Later Nineteenth Century Literature (3)**
- 239. Twentieth Century Literature (3)**
- 243. Poetry (3)**
- 244. Fiction (3)**
- 245. Drama (3)**
- 260. Workshop in Creative Writing (3)**
- 290. Bibliography and Methods of Literary Research (3)**
- 291. Seminar: A Major Author (3)**
- 292. Seminar: A Cultural Period (3)**
- 293. Seminar: A Literary Problem (3)**
- 294. Seminar: A Literary Type (3)**
- 295. Seminar in Linguistics (3)**
- 298. Special Study (1-3)**
- 299. Thesis (3)**

Comparative Literature

Since all reading assigned for classes in comparative literature is in English, knowledge of a foreign language is not required.

52A-52B. World Literature (3-3) I, II

Selected works from various continents and cultures. Semester I: prior to 1500; Semester II: since 1500.

70A-70B. Introduction to Oriental Literature (3-3)

Major writings in translation, with emphasis each semester on the literature of one oriental country.

80A-80B. Third World Literature (3-3)

Modern literature from Third World cultures. Semester I: Literature from Africa, Asia, and Latin America. Semester II: Literature by ethnic minorities in the U.S.

102A-102B. Greek and Latin Literature (3-3)

Masterpieces of ancient Greek literature the first semester, Latin literature the second.

105. The Bible as Literature (3) I

Same course as English 105. Formerly Comparative Literature 115.

Prose and poetry of the King James version.

120. Medieval Literature (3)

Formerly Comparative Literature 155, Literature of the Middle Ages.

Representative selections from authors of the Middle Ages.

122. Continental Renaissance (3)

Formerly Comparative Literature 156.

Representative selections from authors of the Renaissance period in continental Europe.

124. Seventeenth and Eighteenth Century Continental Fiction (3)

Selected works by novelists and short story writers of continental Europe prior to 1800.

125. Nineteen Century Continental Fiction (3)

Formerly Comparative Literature 101A, Modern Continental Fiction.

Selected works by novelists and short story writers of continental Europe between 1800 and 1900.

126. Modern Continental Fiction (3)

Formerly Comparative Literature 101B.

Selected works by novelists and short story writers of continental Europe since 1900.

138. Introduction to Aesthetic Appreciation (1) I

(Same course as Humanities 138)

Major forms of expression and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

140A-140B. Masterpieces of French Literature (3)

A cultural course designed to be given in introduction to the great French works from the Song of Roland through Cyrano de Bergerac, with emphasis on the sixteenth, seventeenth, eighteenth and nineteenth century authors. The contributions to world thinking of Rabelais, Montaigne, Molière, Racine, Descartes, Pascal, Montesquieu, Voltaire, Rousseau, Hugo, Balzac, Flaubert, Maupassant, Zola, will be studied through lectures and outside readings.

142. The Golden Age of German Literature (3) I, II

Masterpieces of German literature from the eighteenth and early nineteenth centuries.

143. Masterpieces of Modern German Literature (3) I, II

Selected works in English translation by outstanding German writers, poets, and thinkers of the 19th and 20th centuries. Included are contributions by Hölderlin, E.T.A. Hoffmann, Heine, Keller, Hebbel, Nietzsche, Hauptmann, Rilke, Hesse, Th. Mann, Kafka, Werfel, Bann, Brecht, and others.

144. Masterpieces of Spanish Literature (3) I, II

Reading selections from major Spanish authors.

145. Modern Latin American Literature (3) I, II

Reading selections from major Latin American authors.

150. The Epic (3)

Selected epic poems from world literature; emphasizes the Western epic tradition from Homer to the present.

152A-152B. World Drama (3-3)

Selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings.

153A-153B. World Poetry (3-3)

Selected lyric poets from world literature; first semester: prior to 19th century; second semester: 19th and 20th centuries.

170. Studies in Modern Oriental Literature (3)

Types of recent literature in translation, with emphasis on the writing of one oriental country. May be repeated once for additional credit with new material.

180. Afro-American Literature (3)

Selected works by black authors in Africa, North and South America, and the Caribbean; intercontinental influences and the theme of black identity.

185. Yiddish Literature (3) I, II

Selected works from the Jewish communities of Central Europe.

186. Modern Jewish Literature (3) I, II

Selected works by Jewish authors from the last half of the nineteenth century to the present, with emphasis on the United States and Israel.

190. Literary Movements (3)

A movement or theme in world literature—such as Symbolism, Realism, Existentialism, alienation, or revolution. May be repeated for a maximum of six units credit.

191. Literary Use of Legend (3)

Literary treatment of such legendary figures as Don Juan, Faust, and Ulysses, in a wide range of literature and genres.

192. Major Individual Authors (3)

In-depth study of the works of a major author, such as Sophocles, Dante, Cervantes, Goethe, Dostoyevsky or Proust. Maximum credit six units.

193. Literature and Other Disciplines (3)

Comparative study of relationship between literature and another field, such as art, music, philosophy, psychology, political science, or social science. Examples: novel and film, black literature and black music, theatre and politics. May be repeated with new content. Maximum credit six units.

French and Italian

In the College of Arts and Letters

Faculty

Emeritus: Brown, E. M.

Professors: Max, Messier, Piffard

Associate Professors: Glasgow, Nelson, H. (Chairman), Vergani, G.

Assistant Professors: Altamura, Branan, Dunhouse, Ghilbert, Hanchett, E., Palmer, Vergani, L., Woodle

Lecturer: Marcuse

Offered by the Department

Master of Arts degree in French.

Major in French with the A.B. degree in liberal arts and sciences.

Minor in French.

Minor in Italian.

Teaching major in French with specialization in both elementary and secondary teaching.

Teaching minor in French with specialization in both elementary and secondary teaching.

Teaching minor in Italian with specialization in both elementary and secondary teaching.

French Major

With the A.B. Degree in Liberal Arts and Sciences

Students majoring in French must complete a minor in another field to be approved by the departmental adviser in French.

Preparation for the major. French 1, 2, 3, 4, 10, and 11. (20 units.) Recommended: History 4A-4B.

Major. A minimum of 24 upper division units in French to include French 101A-101B, 102A-102B, and 12 units in the period literature of the language.

French Minor

The minor consists of 15 units in French, six of which must be upper division.

Italian Minor

The minor consists of 15 units in Italian, six of which must be upper division.

French Major

For the Standard Teaching Credential

Preparation for the major. French 1, 2, 3, 4, 10, 11 (20 units).

Teaching major. Twenty-four upper division units to include French 101A-101B, 102A-102B, 122, 140, 141, and 150. The candidate for the elementary credential takes in addition three upper division units of electives in French and Education 136. The candidate for secondary teaching takes instead six upper division units of French in the period literature of the language, and six units of graduate courses in French in a postgraduate year.

Proficiency examinations. Before taking a student teaching assignment in the language, the candidate must pass an oral examination in the language administered by the department. In addition, the candidate for the secondary credential must pass a written examination in French civilization. Apply to the chairman of the department for time and place.

French Minor

For the Standard Teaching Credential

Specialization in Elementary Teaching

The minor in French for elementary teaching consists of not less than 20 units in French, six units of which must be in upper division courses.

Proficiency Examination: Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

Specialization in Secondary Teaching

The minor in French for secondary teaching consists of not less than 20 units in French, exclusive of course equivalents, to include in the lower division, French 1, 2, 3, 4, 10, and 11 (or equivalents); and in the upper division, French 101A, 101B, 102A, 102B, and 122.

Proficiency Examinations: Before taking a student teaching assignment in the language, the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.

Italian Minor

For the Standard Teaching Credential

Specialization in Elementary Teaching

The minor in Italian for elementary teaching consists of not less than 20 units in Italian, six units of which must be in upper division courses.

Proficiency Examination: Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

Specialization in Secondary Teaching

The minor in Italian for secondary teaching consists of not less than 20 units in Italian, exclusive of course equivalents, to include in the lower division, Italian 1, 2, 3, 4, 10, and 11 or equivalents; and in the upper division, Italian 101A, 101B, 102A, 102B, and 122.

Proficiency Examinations: Before taking a student teaching assignment in the language (Education 180C, 180D), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (Italian 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school French may be counted as the equivalent of French 1; three years the equivalent of French 2; and four years the equivalent of French 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work. These same regulations apply to Italian.

French

All upper division courses in French are taught in French unless otherwise noted.

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on French culture and civilization, minimum essentials of grammar.

2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: French 1 or two years of high school French.

Continuation of French 1.

3. Intermediate (4) I, II

Prerequisite: French 2 or three years of high school French.

A practical application of the fundamental principles of grammar. Reading in French of cultural material, short stories, novels or plays; oral practice.

4. Intermediate (4) I, II

Prerequisite: French 3 or four years of high school French.

Continuation of French 3; outside reading with oral and written reports.

7A-7B. Intensive Reading Course in French (2-2)

Prerequisites: French 1 and 2 or three years of high school French. French 7A is prerequisite to French 7B.

Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in French. Open only to students preparing for departmental reading examinations. Not open to students with credit in French 3 or 8A-8B.

8A-8B. Scientific Reading (2-2)

Prerequisites: French 2 with a grade of C or better, or three years of high school French. French 8A is prerequisite to French 8B.

Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit in French 3 or 7A-7B.

10. Conversation (2) I, II

Prerequisite: French 2 or three years of high school French.

Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) I, II

Prerequisite: French 10 or French 3, or four years of high school French.

Continuation of French 10.

101A-101B. Advanced Oral and Written Composition (3-3)

Prerequisites: French 4 and 11.

Translation into French from moderately difficult English prose. Outside reading of modern French prose, with written reports in French monthly. Readings and oral discussions in French of various facets of French life and culture.

102A-102B. Survey Course in French Literature (3-3)

Prerequisite: French 4.

Important movements, authors, and works in French literature from the Middle Ages to the present. French 10 and 11 strongly recommended for liberal arts minor.

105. Nineteenth Century French Theatre (3)

Prerequisites: French 4 and 11.

Classroom reading and discussion of plays from Victor Hugo through Edmond Rostand. Outside reading and reports.

107A-107B. Eighteenth Century French Literature (3-3)

Prerequisites: French 4 and 11.

The works of Montesquieu, Voltaire, Rousseau, the Encyclopédistes, as well as the theater and novel of the period. Outside reading and reports.

110A-110B. Nineteenth Century French Novel (3-3)

Prerequisites: French 4 and 11.

The French novel from Victor Hugo through Anatole France. Class reading, outside reading, reports.

111A-111B. Seventeenth Century French Literature (3-3)

Prerequisites: French 4 and 11.

Introduction to the main writers of the Golden Age of French Literature with emphasis on Corneille, Molière, Racine. Lectures, class discussions, outside readings and reports.

112A-112B. French Lyric Poetry (3-3)

Prerequisite: French 102A-102B.

The French lyric tradition and its development from the introduction of the genre in the Middle Ages to the contemporary period.

114. Twentieth Century French Novel (3)

Prerequisites: French 4 and 11.

Major novelists of twentieth century France.

115. Twentieth Century French Theatre (3)

Prerequisites: French 4 and 11.

Major dramatists of twentieth century France.

117. Renaissance and Baroque Literature (3)

Prerequisites: French 4 and 11.

Readings from the major writers of the Renaissance and Baroque periods.

122. The Foreign Language Laboratory (2)

Conducted in English.

Prerequisite: Admission to Teacher Education.

Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in German, Italian, Russian, or Spanish 122.

140. French Civilization (3)

Prerequisites: French 4 and 11.

French culture of the past and present, with emphasis on the arts, philosophy and literature.

141. French Civilization (3)

Prerequisites: French 4 and 11.

Continuation of French 140.

148. Applied French Linguistics (3)

Prerequisite: French 101A-101B.

The differences and similarities between the spoken and written forms of present-day French; analysis of its sounds, morphological and syntactic structure. Designed especially for prospective teachers who expect to use an audio-lingual approach.

150. Advanced Phonetics and Diction (3) Irregular

Prerequisites: French 1, 2, 3, 4, or equivalents, 10 and 11.

For students and teachers of French wishing to perfect their pronunciation and diction. Correct formation of French sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recording.

201. History of the French Language (3)**202. Medieval French Literature (3)****203. Literature of the French Renaissance (3)****214. The Novel in France in the 20th Century (3)****215. The Theater in France in the 20th Century (3)****220. Explication de Textes (3)****230. Methods of Literary Criticism (3)****250. Seminar in Seventeenth-Century Literature (3)****260. Seminar in Eighteenth-Century Literature (3)****270. Seminar in Nineteenth-Century Literature (3)****290. Research and Bibliography (3)****294. Comprehensive Reading and Survey Course (3)****298. Special Study (1-3)****299. Thesis (3)**

Italian

1. Elementary (4) I

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Italian culture and civilization, minimum essentials of grammar.

2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Italian 1.

Continuation of Italian 1.

3. Intermediate (4) I

Prerequisite: Italian 2.

A practical application of the fundamental principles of grammar. Reading in Italian of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4) II

Prerequisite: Italian 3.

Continuation of Italian 3. Reading of selections from Italian literature.

10. Conversation (2) I

Prerequisite: Italian 2 or three years of high school Italian.

Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II

Prerequisite: Italian 10 or Italian 3, or four years of high school Italian.

Continuation of Italian 10.

40. Italian Civilization (3) I

(Same course as Humanities 54)

Conducted in English.

The major aspects of Italian civilization with particular emphasis upon literature, art, philosophy, music, and history.

41. Italian Civilization (3) II

(Same course as Humanities 55)

Conducted in English.

Continuation of Italian 40.

101A-101B. Advanced Oral and Written Composition (3-3)

Prerequisite: Italian 4 and 11, with a grade of C or better.

Translation into Italian from moderately difficult English prose. Outside reading of modern Italian prose, with monthly written reports in Italian. Readings and oral discussions in Italian on various facets of Italian life and culture.

102A-102B. Survey of Italian Literature (3-3)

Prerequisite: Italian 4 with a grade of C or better.

Important movements, authors, and works in Italian literature from the Middle Ages to the present.

103A-103B. Dante and the Divine Comedy (3-3)

Prerequisites: Italian 101A-101B, 102A-102B.

The poet, his cultural background, and his political-historical mission.

104A-104B. Literature of the Italian Renaissance (3-3)

Prerequisites: Italian 101A, 101B, 102A, 102B.

Literature of the 15th and 16th centuries as presented in the works of Poliziano, Lorenzo de' Medici, Pulci and Boiardo; Machiavelli, Aristo, Michelangelo, Cellini and Tasso.

122. The Foreign Language Laboratory (2) I

Conducted in English.

Prerequisite: Admission to teacher education.

Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, German, Spanish, or Russian 122.

140. Italian Civilization (3) I

(Same course as Humanities 154)

Conducted in English.

An advanced course in the major aspects of Italian civilization with particular emphasis on literature, art, philosophy, music, and history with written reports on individual topics.

141. Italian Civilization (3) II

(Same course as Humanities 155)

Conducted in English.

Continuation of Italian 140.

150. Advanced Phonetics and Diction (3)

Prerequisites: Italian 4, 10, and 11.

For students and teachers of Italian wishing to perfect their pronunciation and diction. Correct formation of Italian sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recordings.

General Language

*An Interdisciplinary Program Administered by the Dean of the
College of Arts and Letters*

20. Latin and Greek Word Derivation (3) I, II

A general and elementary course in philology. A study of Latin and Greek stems of most frequent occurrence in English, and of the English words derived from them.

196. General Linguistics (3) I

Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.

The principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

Geography

In the College of Arts and Letters

Faculty

Emeritus: Molitor, Post, Storm

Professors: Eidemiller, Finch, Pouquet, Richardson, R., Taylor, J., Yahr

Associate Professors: Blick, Greenwood, Heiges, Keen, Kiewiet de Jonge, O'Brien, B., Wright (Chairman)

Assistant Professors: Colombo, Ford, L., Johnson, W.A., Pryde, Quastler, Stutz, van Beek

Offered by the Department

Master of Arts degree in geography.

Major in geography with the A.B. degree in liberal arts and sciences.

Minor in geography.

Teaching major in geography with specialization in secondary teaching.

Teaching minor in geography with specialization in both elementary and secondary teaching.

Major

With the A.B. Degree in Liberal Arts and Sciences

Students majoring in geography must complete a minor in another field to be approved by the major adviser.

Preparation for the major. Geography 1 and 2 (6 units). Four to six units selected from Geography 3, 4, 5, 7, 54, and 60 are strongly recommended.

Major. A minimum of 24 upper division units in geography to include three units from courses numbered 100–109, three units from courses numbered 110–111 and 150–159 and 170–179, three additional units from either of the above groups, three units from courses numbered 119–139, three units from 180, 182 or 185, three units from 181A or 183, three units from 198 taken from three different instructors, and three units of electives.

Minor

The minor consists of 15 units in geography, nine of which must be upper division.

Major

For the Standard Teaching Credential

Specialization in Secondary Teaching

Preparation for the major. Geography 1 and 2 (6 units). Four to six units selected from Geography 3, 4, 5, 7, 54, and 60 are strongly recommended.

Teaching major. A minimum of 24 upper division units in geography to include nine units in courses numbered 100–111 and 150–179, six units in courses numbered 119–139, six units in courses numbered 180–189, and three units of electives.

Postgraduate Year. Six upper division or graduate units acceptable toward the credential, to be selected with the help of the departmental adviser.

Minor

For the Standard Teaching Credential

The minor in geography for the standard teaching credential with specialization in either elementary or secondary teaching consists of not less than 20 units in geography to include Geography 1 and 2, and a minimum of 9 units of upper

division courses (12 units if major is a non-academic major) in geography. Additional geography electives must be taken to complete the minimum of 20 units.

1. Introduction to Geography: Physical Elements (3) I, II

The nature of maps, weather and climates of the world; natural vegetation; land forms and their associated soils, with reference to their climatic relationships; the seas and their coasts. Related field observations.

2. Introduction to Geography: Cultural Regions (3) I, II

The regional differentiation of the world by human activity; areal bases of economy and nationality. A maximum of six units will be allowed for Geography 2, and 112A or 112B.

3. Introduction to Meteorology (3) I, II

The composition, structure, and circulation of the atmosphere, including elementary theory of storms and other weather disturbances. May be followed by, or taken with, Geography 4.

4. Introduction to Meteorology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 3.

Theory of meteorological instruments and observations. Practical exercise in surface and upper air observations, weather codes, and elementary weather map analysis.

5. Physical Geography Laboratory (1)

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 1.

Practical exercise and observation in map analysis, weather elements, climatic regions, and the earth's landform features. Designed to supplement Geography 1.

7. Man and the Environmental Problem (3)

Man's impact upon and interaction with the natural environment, including suggested alternatives to existing abuses. Not open to students with credit in Geography 170.

54. Urban Geography (3)

Prerequisite: Geography 1 or 2.

The principles and concepts in urban geography, the origin and development of cities, urbanization, and urban problems. Not open to students with credit in Geography 154.

60. Economic Geography (3) I, II

Prerequisite: Geography 1 or 2.

Man's economic activities over the earth's surface. Principles of agricultural production, extractive industries, manufacturing regions, industrial location, and transportation and trade.

100A. Physical Climatology (3)

Prerequisite: Geography 3.

Effects of latitude, altitude, mountains, ocean currents, wind systems, and various surfaces on the distribution of solar radiation, temperature, precipitation, and other climatic elements. Statistical reduction and interpretation of climatic data.

100B. Regional Climatology (3)

Prerequisite: Geography 3.

The causes of climatic types as they occur throughout the world. Principles of several climatic classifications.

101. Climatic Physiography (3)

Prerequisites: Geography 1, Geology 1A or 2.

The origin and morphology of landforms with emphasis on the external forces.

102. Structural Physiography (3)

Prerequisites: Geography 1, and Geology 1A or 2.

Origin and morphology of landforms with emphasis on internal forces.

103. Fluvial and Eolian Physiography (3)

Prerequisites: Geography 1, Geology 1A or 2.

Flowing water and the wind as agents in shaping the land. Transportation of material by water and air, drainage basin characteristics, river channel shape and dimension, sand dunes, and loess.

104. Coastal and Submarine Physiography (3)

Prerequisites: Geography 1, Geology 1A or 2.

Marine physiographic processes and their effects on developing the landforms of coasts, continental shelves, and ocean floors.

105. Geography of Soils (3) II

Prerequisite: Geography 1.

The nature, properties and distribution of soils and their relationships to the influence of climates, landforms, and human activity.

106. Geography of Soils Laboratory (1)

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 105.

Theories of soil genesis, edaphology and structure related to empirical phenomena through laboratory experimentation and observation. Best suited to concurrent enrollment in Geography 105.

107. Geography of Natural Vegetation (3)

Prerequisite: Geography 1.

The natural vegetation associations of the world their distribution, classification and development, including relationship to human activities.

110. Historical Geography (3) II

Prerequisite: Geography 1 or 2.

Transformation of the natural and cultural landscape with emphasis on the utilization and significance of resources. Exploration, migration, and settlement in relation to geographic phenomena.

111. Principles of Geographical Analysis (3)

Prerequisites: Geography 1 and 2.

Major concepts and techniques of the field of geography.

112A-112B. Culture Worlds (3-3)

The evolution, distinguishing cultural characteristics, and physical features of the major cultural regions of the world, with emphasis on the role man has played in the alteration of the natural landscape. A maximum of six units will be allowed for Geography 2, and 112A or 112B.

119. Geography of San Diego County (3) II

Saturday field trips to be arranged.

Prerequisites: Geography 1 and 2.

Analysis of the physical and cultural geographic aspects of San Diego County. Completion of Geography 100, 101, 105 will be helpful to students enrolling in this course. (Formerly numbered Geography 184.)

120. California (3) I, II

Prerequisite: Geography 1 or 2.

Systematic and regional analysis of the topography, climate, natural vegetation, and their relationships with the past and present activities of man and his use of the land; field trip. Offered in summer with a 10-day tour.

121. United States (3) I, II

Prerequisite: Geography 1 or 2.

The natural regions of the United States, their formation and economic and historical development.

122. Canada and Alaska (3) II

Prerequisite: Geography 1 or 2.

The physical and historical bases of Canadian and Alaskan regionalism; the economic and strategic importance of these two areas.

123. Middle America (3) II

Prerequisite: Geography 1 or 2.

The land and peoples of Mexico, Central America, and the islands of the Caribbean; a survey of the resources, economies, and trade of the region.

124. South America (3) I

Prerequisite: Geography 1 or 2.

The physical regions and human geography of South America, including the history of colonization and the exploitation of resources.

125. North Africa and the Near East (3) II

Prerequisite: Geography 1 or 2.

The geographic bases for the political heritage, economies and peoples of North Africa, including the Sahara, and the Near East.

126. Europe (3) I, II

Prerequisite: Geography 1 or 2.

Systematic analysis of the geographic bases of modern European life. Regional investigation of countries of Europe except the Soviet Union.

127. Soviet Union (3) I, II

Prerequisite: Geography 1 or 2.

Natural resources, agricultural production, industrial growth, and transportation.

129. Oceania (3) II

Prerequisite: Geography 1 or 2.

The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

130. Central and Southern Africa (3) I

Prerequisite: Geography 1 or 2.

A regional geography of Africa south of the Sahara; the physical geographic base for the peoples and their economic activities.

131. Eastern Asia (3) I

Prerequisite: Geography 1 or 2.

The geographic bases for the political heritage, economies, and people of Eastern Asia.

133. Southeastern Asia (3)

Prerequisite: Geography 1 or 2.

The geographic bases for the political heritage, economies, and peoples of Southeastern Asia.

134. Southern Asia (3)

Prerequisite: Geography 1 or 2.

The geographic bases for the political heritage, economies, and peoples of Southern Asia.

150. Political Geography (3) I

Geography as it relates to the strength of nations and international relations.

151. Economic Geography: Primary Production (3) I

Prerequisite: Geography 1 or 2.

The geography of agricultural production and the extractive industries in relation to world commerce.

152. Industrial Geography (3) II

Prerequisite: Geography 1 or 2.

Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions.

153. Location Analysis and Geographic Theory (3)

Prerequisite: Geography 111.

Spatial arrangement and interrelationships of resources, production, exchange and consumption of goods and services and a study of location theory in economic geography.

154. Geography of Cities (3)

Prerequisite: Geography 2.

Survey of the location, function and spread of cities; the spatial and functional arrangement of activities in cities, leading to an analysis of current urban problems: sprawl, city decline, metropolitan transportation. Not open to students with credit in Geography 54.

155. Urban Location and Settlement Geography (3)

Prerequisite: Geography 54 or 154.

Analysis of urban and other agglomerated settlements in terms of their spatial arrangement, principal functions, economic base, and supporting areas.

156. Internal Spatial Structure of Cities (3)

Prerequisite: Geography 54 or 154.

Geographic principles and characteristics concerning the internal structure and functioning of urban centers, including discussions of internal problems of our cities today. Field reconnaissance in the local urban "laboratory".

157. Quantitative Methods of Urban Analysis (3)

Prerequisite: Geography 155 or 156 and 185.

Spatial models of urban activities and land use, population distribution and allocation, and computer applications in urban analysis, including computer methods of mapping and graphing.

158. Transportation Geography (3)

Prerequisite: Geography 1 or 2.

The spatial distribution of transportation networks and commodity movement and their relationship to the distribution of economic activity.

159. Urban Transportation Geography (3)

Prerequisite: Geography 54, 154, or 158.

Urban transportation networks and their effects, past, present, and future on the economy and physical structure of the urban region.

160. Advanced Transportation Geography (3)

Prerequisite: Geography 158 or 159.

Topics in the spatial analysis of transportation, e.g., spatial interaction patterns, diffusion process, models in spatial analysis.

170. Conservation of Environmental Quality (3)

Prerequisite: Geography 1 or 2.

Quality of man's habitat in a changing human and natural environment; water, air and soil pollution, urban crowding, disappearance of open space, and decreasing opportunities for outdoor recreation. Not open to students with credit in Geography 7.

171. Conservation of Natural Resources (3) I, II

Prerequisite: Geography 1 or 2.

Nature and extent of mineral, soil, water, forest, and wildlife resources and their conservation, with particular emphasis on the United States against a general background of world resources. Conservation philosophies and practices and their geographic bases.

173. Geography as Human Ecology (3)

Prerequisite: Geography 7 or 170.

Human ecology related to resource geography.

174. Water Resources (3) II

Prerequisite: Geography 1 or 2; and 7, 170, or 171.

Occurrence and utilization of water resources and the problems of water resource development.

175. Geography of Recreational Land Use (3)

Prerequisite: Geography 7, 170 or 171.

Importance of location and environment in the use, management, and quality of recreation areas.

176. Geography of Marine Resources (3)

Prerequisites: Geography 1 or 2.

Economic geography of use of marine biotic and mineral resources.

180. Field Geography (3) II

Prerequisites: Senior or graduate standing and the completion of at least 12 units in geography, including Geography 1 and 2, and consent of instructor.

Directed fieldwork in physical and cultural geography.

181A. Maps and Graphic Methods (3)

Two lectures and three hours of laboratory.

Prerequisite: Geography 1 or 2.

The art and science of creating graphs and maps as media for describing and analyzing geographic phenomena. Laboratory instruction and practice in cartographic techniques with emphasis on presenting quantitative data.

181B. Advanced Cartography (3)

Two lectures and three hours of laboratory.

Prerequisite: Geography 181A.

Advanced laboratory instruction and practice in cartographic techniques.

181C. Automated Cartography (3)

Two lectures and three hours of laboratory.

Prerequisite: Geography 180, 181A, 182, 183, 185, or 187.

Computerized methods in presenting for comprehension spatially variable information of a quantitative nature; examination of existing automated mapping systems.

182. Use and Interpretation of Aerial Photographs (3) II

Two lectures and three hours of laboratory.

Prerequisites: Geography 1 and consent of instructor.

Stereoscopic interpretation and cartographic representation of landforms, vegetation, and land use. Emphasis on practical exercises.

183. Map Investigation (3) I

Two lectures and three hours of laboratory.

Prerequisite: Geography 1 or 2.

Interpretation and evaluation of maps. History of developments in cartography. Study of major mapping organizations of the world and examination of their products.

184. Field Geography of the Arid Southwestern United States (3) II

Prerequisites: Geography 1 and 2.

An orientation to the Southwestern United States; emphasis upon field observation and interpretation of the cultural and physical landscape. A minimum of fifteen days will be spent in the field.

185. Quantitative Methods in Geographic Research (3)

Prerequisites: Two geography courses including one in upper division; Mathematics 12, and Mathematics 18 or a higher numbered course.

Use of quantitative methods in geographic research.

187. Remote Sensing of the Environment (3)

Two lectures and three hours of laboratory.

Prerequisites: Geography 1, 2, 182 and consent of instructor.

Multiband spectral reconnaissance of the environment. Emphasis on multispectral photography, infrared, microwave scanning systems and multifrequency radar systems and their uses in the study of cultural and bio-physical phenomena.

188. Advanced Remote Sensing of the Environment (3)

Prerequisites: Geography 187 and consent of instructor.

Current research in geographic remote sensing and related fields. Applications of remote sensing in the study of man's cultural and bio-physical environment. Practice in planning, design, execution and interpretation of remote sensing studies.

196. Geographic Internship (3)

Students will be assigned to various government agencies and industry, and will work under joint supervision of agency heads and the course instructor.

197. Investigation and Report (3) I, II

Prerequisites: Senior standing as a geography major or as a social science major with a concentration in geography, and departmental consent.

Analysis of special topics in geography; independent study and investigation; guidance in the collection, organization, and presentation of geographic data.

198. Directed Readings in Geographic Literature (1)

Prerequisites: credit or concurrent enrollment in the subject matter area in which the readings are to be undertaken, and consent of the instructor.

Individually directed readings in geographic literature. May be repeated for a maximum of three units, taken each time from a different instructor.

200A. Seminar in Advanced Physical Climatology (3)

200B. Seminar in Advanced Regional Climatology (3)

205. Geographic Research and Techniques of Presentation (3)

210. History of Geography (3)

220. Seminar in Regional Geography (3)

250. Seminar in Systematic Geography (3)

255. Seminar in Urban and Settlement Geography (3)

256. Seminar in Location of Urban Activities (3)

258. Seminar in Geography of Transportation (3)

259. Seminar in Urban Transportation (3)

260. Seminar in Spatial Structure of Transport Systems (3)

270. Seminar in Theory of Resource Use (3)

272. Seminar in Environmental Quality (3)

275. Seminar in Recreational Geography (3)

- 280. Techniques of Field Research (3)**
- 281. Seminar in Cartography (3)**
- 285. Seminar in the Use of Quantitative Methods (3)**
- 288. Seminar in Remote Sensing of the Environment (3)**
- 296. Geographic Internship (3)**
- 298. Special Study (1-3)**
- 299. Thesis (3)**

Geology

In the College of Sciences

Faculty

Emeritus: Brooks

Professors: Allison, Bassett, Gastil (Chairman), Peterson, G., Roberts, Thomas, B., Threet

Associate Professors: Berry, Krummenacher, Libby, McEuen, Ptacek

Assistant Professors: Frederiksen, Kern

Lecturers: Phillips, Thiesmeyer

Offered by the Department

Master of Science degree in geology.

Major in geology with the B.S. degree in applied arts and sciences.

Minor in geology.

Major

With the B.S. Degree in Applied Arts and Sciences

The major consists of basic requirements in the lower and upper division for all students plus the requirements in one of the following options: (a) General Geology, (b) Paleontology, (c) Geophysics, and (d) Geochemistry.

Basic Requirements for All Students

Preparation for the major. Geology 2 and 3, or 4; 5, 21, 24; Chemistry 1A-1B; and Biology 1 and 2 (32 units). Recommended: a foreign language and a course in mechanical drawing if not completed in high school.

Major. Thirty-six upper division units in approved courses to include Geology 100, 108A-108B, 198A-198B (14 units). Other courses may be substituted for 108B and 198A-198B in the Geophysics option.

Options

In addition to the basic requirements, the student must complete the requirements in one of the following options:

(a) General Geology

Additional preparation for the major. Mathematics 12 and 50; Physics 4A, 4B, 4C (20 units). Recommended: Mathematics 7, 51, and 52; Chemistry 109 or 110.

Major (continued). Geology 30 and 106; 126, or 124 and 125; 130, and at least one of the following: Geology 105, 107, 120, 121, 125, 140, 150, or 160. Electives approved by the departmental adviser to complete 36 upper division units. Recommended: Engineering 2, Chemistry 109 or 110.

(b) Paleontology

Additional preparation for the major. Biology 15; Mathematics 50, or 21 and 22 (alternative of 21 and 22 should not be selected by students planning academic work beyond the B.S. degree); Physics 2A-2B and 3A-3B, or Physics 4A-4B-4C (16-21 units). Recommended: Zoology 50.

Major (continued). Geology 106, 107, 116, and 126. Two courses chosen from the following list: Biology 110; Botany 100 or 172; Zoology 106, 112, 155, or 160. Additional biology and other electives approved by the departmental adviser to complete 36 upper division units.

(c) Geophysics

Additional preparation for the major. Mathematics 7, 50, 51, and 52; and Physics 4A-4B-4C, 73. Recommended: Engineering 30 (30 units).

Major (continued). Geology 110, 112, 120, 121, 130, Mathematics 119, Physics 110, 120A. Either Mathematics 170 and Physics 156, or Physics 100A and 114. Recommended: Engineering 128A.

(d) Geochemistry

Additional preparation for the major. Chemistry 5, and 11 or 12; Physics 4A-4B-4C; Mathematics 50, 51, and 52 (33 units). Recommended: Mathematics 7.

Major (continued). Geology 131; Chemistry 110A-110B. Either Geology 106 and 126, or Geology 124 and 125. Electives approved by the departmental adviser to complete 36 upper division units. Recommended: Geology 130.

Marine Geology

An option in marine geology is not offered. Interested persons should study marine geophysics, marine geochemistry, paleontology, engineering geology, or general geology.

Minor

The minor in geology consists of 15 units in geology, six of which must be in upper division courses.

All minors should include Geology 2 and 3, or 4, and 5 (8 units). Preparation for teaching or naturalist work should include at least two of the following: Geology 14, 21, or 24 (7-8 units), and at least two of the following: Geology 100, 102, 106, 108A, 126, or 140. Those interested in environmental studies should take at least two of the following: Geology 14, 21, 24, 30 (7-8 units), and at least two from: Geology 100, 105, 130, 140, 150. Those interested in oceanography should take at least two from: Geology 14, 21, 24, 30, and at least two from 106, 116, 126, 130.

2. General Geology (3) I, II

Earth materials and processes, the development of land forms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology.

3. General Geology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geology 2.

Recognition of common earth features and materials with experience in both field and map relationships. Designed to accompany and augment Geology 2. Not open to students with previous laboratory credit in geology.

4. Physical (4) I, II

Formerly Geology 1A.

Three lectures and three hours of laboratory with related field study during the semester.

Prerequisite: high school chemistry or physics, or credit or concurrent registration in college chemistry or physics.

The composition, origin, and distribution of earth materials, and their modification through mechanical and chemical processes. Not open to students with credit for Geology 2.

5. Historical (4) I, II

Formerly Geology 1B.

Three lectures and three hours of laboratory. Arrangement for field study during the semester.

Prerequisite: Geology 2 and 3, or 4.

Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence.

14. Geomorphology (3) II ..

Prerequisite: Geology 5.

Development and classification of land forms with consideration of processes involved.

21. Mineralogy (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: credit or concurrent registration in Geology 2 and 3, or 4; high school chemistry and trigonometry, or credit or concurrent registration in college chemistry and trigonometry.

Practice in the determination of the common minerals; their geologic environment, utilization and economic significance.

24. Petrology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Geology 2 and 3, or 4, and credit or concurrent registration in Geology 21.

The origin, occurrence, identification, and classification of rocks in hand specimen and thin section. Introduction to the use of the petrographic microscope.

30. Introduction to Geophysics (3) II

Prerequisites: Geology 2 and 3, or 4; elementary algebra and plane geometry.

Physics of the earth and its application to mineral exploration. Emphasis on case histories. Not open to students with credit in Geology 110 or 112.

53. General Geology for Engineers (1) I, II

One three-hour laboratory or field project per week.

Prerequisite: Engineering 2 or 24.

Earth materials, geologic processes, and methods of geologic interpretation of particular concern to the engineer. Open only to students majoring in engineering. Not open to students with credit in Geology 3.

100. Structural Geology (3) I, II

Two lectures and three hours of laboratory per week with occasional field trips.

Prerequisites: Geology 1A, 1B and trigonometry.

Structural features of the earth, both deformational and primary. Mechanical principles, causes of folding and faulting, graphic solutions and analyses.

102. Geology of North America (3) I

Prerequisite: Geology 1B.

A regional analysis of North American geology, its structural, stratigraphic, and tectonic patterns and hypotheses concerning their origin and evolution.

105. Photogeology (3) II

Two lectures and three hours of laboratory.

Prerequisites: Geology 14 and 100.

Geologic interpretation of aerial photographs, elementary stereoscopy and stereometry applied to structural and stratigraphic problems, and compilation of geologic maps from annotated aerial photographs.

106. Paleontology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Geology 1B and Biology 1 and 2.

Principles and methods, exemplified by a study of the morphology, classification, habit, and geologic significance of fossil invertebrates.

Vertebrate Paleontology, see Zoology 160.

107. Stratigraphy (3) II

Two lectures and three hours of laboratory.

Prerequisites: Geology 5 and 24.

Stratigraphic principles and practices. Consideration of the North American stratigraphic record.

108A. Field Geology (4) II

One lecture and three hours of laboratory, and twelve Saturday field sessions in the local area.

Prerequisites: Geology 100 and credit or concurrent registration in Geology 24.

Techniques and methods of geologic observation, interpretation, and field mapping.

108B. Field Geology (4) I

Prerequisite: Geology 108A.

Geologic investigation of an assigned area with preparation of an individual report and a geologic map.

110. Petroleum Geophysics (3) I

Formerly Introduction to Geophysics.

Prerequisites: Geology 100, Mathematics 52, Physics 4A-4B-4C.

Airborne, surface, and bore-hole geophysical techniques as presently used in oil exploration.

112. Mining Geophysics (3) II

Formerly Advanced Geophysics.

Two lectures, and three hours of laboratory or occasional field trips.

Prerequisites: Geology 100, Mathematics 52, Physics 4A-4B-4C.

Airborne, surface, and bore-hole geophysical techniques used for delineation of ore bodies.

116. Micropaleontology (3) II

One lecture and six hours of laboratory.

Prerequisite: Geology 106.

The morphology, classification and geologic significance of the various microfossils.

118-S. Summer Field Problems (4-6)

Prerequisite: Geology 108A and consent of instructor.

Field techniques in the investigation of selected geological problems. This course cannot be substituted for Geology 108B.

119-S. Summer Field Tour (2)

Prerequisite: Consent of instructor.

A two-week study of some of the classic geologic localities in the western United States. A camping trip with travel by chartered bus. Localities visited may vary from year to year. May be repeated for a maximum of four units.

120. Ore Deposits (3) I

Prerequisites: Completion or concurrent registration in Geology 24 and 100.

Geologic relations, origin, distribution, and economics of metallic and non-metallic mineral deposits.

121. Petroleum Geology (3) II

Prerequisites: Completion or concurrent registration in Geology 24 and 100.

Geologic occurrence of petroleum and the application of geologic principles in exploration and production.

124. Optical Mineralogy (3) I

Two lectures and three hours of laboratory.

Prerequisite: Geology 21.

Theory and use of the polarizing microscope for determining optical properties of minerals as an aid to their identification.

125. Petrography (4) II

Two lectures and six hours of laboratory.

Prerequisites: Geology 124 and 130.

A study of rocks with the polarizing microscope; identification of mineral constituents; interpretation of textures; classification of rocks; problems of genesis.

126. Sedimentology (3) II

Two lectures and three hours of laboratory.

Prerequisites: Geology 5 and 24.

Origin, description, and classification of sedimentary rocks and structures.

130. Geochemistry (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Geology 24 and Chemistry 1B; Mathematics 21 and 22, or 50.

The relationship of basic chemical principles to geologic phenomena and environments, including applications to geologic exploration problems.

131. Advanced Geochemistry (3) I

Prerequisites: Geology 24 and credit or concurrent registration in Chemistry 110B.

Application of physical-chemical methods and principles to the solution of geologic problems. Emphasis on major earth cycles and processes.

140. Marine Geology (3) I

Two lectures and three hours of discussion, demonstration, and field work.

Prerequisites: Geology 5, and either Geology 14, 24, 102, or 106.

The morphology, composition, structure, history, and geologic processes of the earth beneath the sea.

150. Engineering Geology (3) I

Two lectures and several weekend field trips.

Prerequisite: Geology 108A.

Case histories selected to demonstrate the application of geology to the location, design, and maintenance of engineering projects.

160. X-Ray Diffraction (2) II

One lecture and three hours of laboratory.

Prerequisites: Chemistry 1A-1B; Mathematics 50; Physics 2A-2B and 3A-3B, or 4A-4B-4C; and credit or concurrent registration in either Chemistry 109A or 110A, Engineering 25, Geology 21, or Physics 101.

Theory and application of X-ray diffraction to the study of materials.

173. Stratigraphic Palynology (3) II

Formerly Geology 221, Advanced Palynology.

One lecture and six hours of laboratory.

Prerequisite: Botany 172.

Recovery and study of spores, pollen grains, and microplankton from ancient and modern sediments; stratigraphic, ecological, and botanical significance of these microfossils.

196. Advanced Topics in Geology (1-3) I, II

Prerequisite: consent of instructor.

Selected topics in geology and related earth sciences. May be repeated with new content for maximum credit of six units.

198A. Senior Research (1) I, II

Prerequisite: Credit or concurrent registration in Geology 108A.

Three hours of laboratory and discussions.

Selection and design of an individual research project. Oral and written progress reports.

198B. Senior Research (2) I, II

Six hours of laboratory and discussions.

Prerequisites: Geology 198A and Geology 108B.

Individual research project, involving field work in a selected field of geology, with oral reports of progress to the class and a final oral and written report of work accomplished.

200. Seminar (1-3)**208. Graduate Field Geology (3) II****209. Igneous Petrology (3)****211. Metamorphic Petrology (3)****212. Sedimentary Petrology (3)****220. Biostratigraphy (3)****225. Paleocology (3)****229. Seminar: Advanced Studies in Stratigraphy (3)****235. Marine Processes (3)****240. Geotectonics (3)****245. Advanced Structural Geology (3)****250. Seminar: Physical Properties of Earth Materials (3)****260. Isotope Geology (3)****270. Pleistocene Geology (3)****280. Sedimentary Geochemistry (3)****285. Genesis of Ore Deposits (3)****297. Research (1-3)****298. Special Study (1-3)****299. Thesis (3)**

German and Russian

In the College of Arts and Letters

Faculty

Emeritus: Walker

Professors: Dukas, Lawson, Paulin (Chairman), Wolf, E.

Associate Professors: Boney, Dunkle, Kozlik, Schaber, Tanaka, Westervelt, Wulbern

Assistant Professors: Bialy, Cross, Fetzer, Herrmann

Offered by the Department

Master of Arts degree in German.

Major in German with the A.B. degree in liberal arts and sciences.

Minor in German.

Teaching major in German with specialization in both elementary and secondary teaching.

Teaching minor in German with specialization in both elementary and secondary teaching.

Master of Arts in Russian.

Major in Russian with the A.B. degree in liberal arts and sciences.

Minor in Russian.

Teaching major in Russian with specialization in secondary teaching.

Teaching minor in Russian with specialization in both elementary and secondary teaching.

German Major

With the A.B. Degree in Liberal Arts and Sciences

Students majoring in German must complete a minor in another field to be approved by the departmental adviser in German.

Preparation for the major. German 1, 2, 3, 4, 10, and 11. (20 units.)

Major. A minimum of 24 upper division units in German to include German 101A-101B, 102A-102B, and 12 units in the period literature of the language.

German Major

For the Standard Teaching Credential

Proficiency Examination: Before taking a student teaching assignment in German, the candidate for the credential may be required to pass an oral and written proficiency examination in the language, administered by the Department of German and Russian. The candidate should consult the chairman of the Department.

Specialization in Elementary Teaching

Preparation for the major. German 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major. A minimum of 24 upper division units to include German 101A-101B, 102A-102B, 125A or 125B, 140, 141, 150, and three upper division units of electives in German. In addition to the major, credential candidates must complete Education 136.

Specialization in Secondary Teaching

Preparation for the major. German 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in German to include German 101A-101B, 102A-102B, 140, 141, and six upper division units of electives in German. In addition to the major, credential candidates must complete Education 136. Recommended: German 148, 150; and 125A or 125B.

Postgraduate Year. Six units of graduate courses in German.

German Minor

The minor consists of 15 units in German, six of which must be upper division. For elementary teaching, it consists of 20 units in German, six of which must be upper division.

For secondary teaching, it consists of German 1, 2, 3, 4, 10, 11, 101A-101B, 102A-102B, and 125A or 125B.

Proficiency examination. As above, for the major.

Russian Major

With the A.B. in Liberal Arts and Sciences

A minor is required, approved by the departmental adviser in Russian.

Preparation for the major. Russian 1, 2, 3, 4, 10, and 11 (20 units). Recommended: History 4A-4B.

Major. Twenty-four upper division units in Russian, to include Russian 101A-101B, 102A-102B, and 12 units in the period literature of the language.

For the Standard Teaching Credential for Secondary Teaching

Proficiency examination. The requirement for Russian parallels that for German.

Preparation for the major. Russian 1, 2, 3, 4, 10, and 11.

Teaching major. Twenty-four upper division units in Russian to include Russian 101A-101B, 102A-102B, 140, 141, and six upper division units of Russian in the period literature of the language. Recommended: Russian 130 or 131. In the post-graduate year, six units of graduate courses in Russian.

Russian Minor

The minor consists of 15 units in Russian, six of which must be upper division.

For elementary teaching, it consist of 20 units in Russian, six of which must be upper division.

For secondary teaching, it consists of Russian 1, 2, 3, 4, 10, 11, 101A-101B, 102A-102B, and 130 or 131.

Proficiency examination: as above.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school German may be counted as the equivalent of German 1; three years the equivalent of German 2; and four years the equivalent of German 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

Parallel provisions apply to Russian.

German

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on German culture and civilization, minimum essentials of grammar.

2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: German 1 or two years of high school German.

Continuation of German 1.

3. Intermediate (4) I, II

Prerequisite: German 2 or three years of high school German.

A practical application of the fundamental principles of grammar. Reading in German of cultural material, short stories, novels or plays; oral practice.

4. Intermediate (4) I, II

Prerequisite: German 3 or four years of high school German.

Continuation of German 3.

7A-7B. Intensive Reading Course in German (2-2)

Prerequisites: German 1 and 2 or three years of high school German.

Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in German.

8A-8B. Scientific Reading (2-2)

Prerequisite: German 2 or three years of high school German.

Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc.

10. Conversation (2) I, II

Prerequisite: German 2 or three years of high school German.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) I, II

Prerequisite: German 10 or German 3, or four years of high school German.

Continuation of German 10.

101A-101B. Oral and Written Composition (3-3)

Prerequisites: German 4 and 11.

Translation into German of moderately difficult English prose. Free composition in German, written and oral. Outside reading of modern German plays and prose, discussions in German. Oral and written practice in conversational German.

102A-102B. Survey of German Literature (3-3)

Prerequisite: German 4.

Important movements, authors, and works in German literature from the Middle Ages to the present.

103A-103B. German Literature of the Eighteenth Century (3-3)

Prerequisites: German 4 and 11.

The literature of the German Enlightenment, the "Storm and Stress," the Classical Age. Outside readings and reports.

105A-105B. German Literature of the 19th Century (3-3)

Prerequisites: German 4 and 11.

The literature of German Romanticism, Young Germany, Realism, and Naturalism. Outside readings and reports.

107. German Literature from its Beginning to the Reformation (3)

Prerequisites: German 4 and 11.

Poetry, drama, and prose of the Old High German, Middle High German, and early New High German periods, the early texts to be read in modern German adaptations.

110A-110B. Contemporary German Literature (3-3)

Prerequisites: German 4 and 11.

The main developments in German literature from Neo-Romanticism to the present. Outside readings and reports.

111. Contemporary German Drama (3)

Prerequisites: German 4 and 11.

German drama from Hauptmann to the present.

115. Goethe's *Faust* (3)

Prerequisites: German 4 and 11.

Goethe's *Faust*, Parts 1 and 2, its philosophical contents and its position in German and European literature; lectures, reading, reports.

125A-125B. Advanced Oral and Written Composition (2-2)

Prerequisite: German 101A-101B.

Advanced forms of oral and written German.

130. German Syntax and Stylistics (3)

Prerequisites: German 101A-101B.

Theoretical and practical study of the structure of German prose.

140. German Civilization (2) I

Prerequisites: German 4 and 11.

Conducted in German. Primarily for German majors and minors.

German culture from the Middle Ages to the present, with emphasis on the arts, music and philosophy.

141. German Civilization (2) II

Prerequisites: German 4 and 11.

Conducted in German. Primarily for German majors and minors.

Continuation of German 140.

148. Applied German Linguistics (3)

Prerequisites: German 101A-101B.

Linguistic study of modern German; integration of modern linguistic theory with the language classroom.

150. German Phonology (3)

Prerequisites: German 4 and 11.

Sounds, intonation, and elocution of German.

152. Middle High German (3)

Prerequisite: Twelve units of upper division German.

The grammatical structure of Middle High German with readings from the period.

201. History of the German Language (3)**202. Middle High German Literature (3)****203. The German Novelle (3)****204. The German Novel in the Twentieth Century (3)****205. German Lyric Poetry from Hölderlin to Rilke (3)****206. German Drama of the 19th Century (3)**

- 207. Renaissance and Baroque Literature (3)**
- 208. Goethe (3)**
- 210. Schiller (3)**
- 251. Seminar in Eighteenth-Century Literature (3)**
- 255. Seminar in Nineteenth-Century Literature (3)**
- 260. Seminar in Twentieth-Century Literature (3)**
- 265. Seminar in Germanic Linguistics (3)**
- 290. Research and Bibliography (3)**
- 297. Research (3)**
- 298. Special Study (1-3)**
- 299. Thesis (3)**

Russian

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, reading in Russian literature, minimum essentials of grammar.

2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: Russian 1.

Continuation of Russian 1.

3. Intermediate (4) I

Prerequisite: Russian 2 or three years of high school Russian.

A practical application of the fundamental principles of grammar. Reading in Russian of cultural material, short stories, novels or plays; oral practice.

4. Intermediate (4) II

Prerequisite: Russian 3.

Continuation of Russian 3.

8A-8B. Scientific Reading (2-2)

Prerequisite: Russian 2 or three years of high school Russian. 8A is prerequisite to 8B.

Intensive reading in scientific fields.

10. Conversation (2) I

Prerequisite: Russian 2 or three years of high school Russian.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II

Prerequisite: Russian 10 or Russian 3, or four years of high school Russian.

Continuation of Russian 10.

40. Russian Civilization (3) I

(Same course as Humanities 52)

Conducted in English.

The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy, and music.

41. Russian Civilization (3) II

(Same course as Humanities 53)

Conducted in English.

Continuation of Russian 40.

101A-101B. Conversation and Composition (3-3)

Prerequisite: Russian 4.

Translation into Russian from moderately difficult English prose, with written reports in Russian. Readings and oral discussions of Russian plays and short stories.

102A-102B. Survey of Russian Literature (3-3)

Russian literature from its beginnings, with emphasis on the nineteenth and twentieth centuries.

103. Old Russian Literature (3)

Masterpieces of Russian literature before 1700.

104. Russian Literature of the 18th Century (3)

Russian Classicism and Sentimentalism.

105A-105B. The Russian Short Story, Drama, and Poetry of the 19th Century (3-3)

Development of the Russian short story, drama, and poetry of the 19th Century.

110A-110B. The Russian Novel of the 19th Century (3-3)

Development of the Russian novel of the 19th Century.

111. Russian Literature of the 20th Century (3)

Poetry, prose, and drama of the 20th century.

130. Russian Syntax and Stylistics (3)

Prerequisite: Russian 101A-101B.

The structure of contemporary Russian.

131. Russian Phonology and Morphology (3)

Prerequisite: Russian 4 and 11.

The sounds and forms of contemporary Russian.

140. Russian Civilization (3) I

(Same course as Humanities 152)

Conducted in English.

An advanced course in Russian culture of the past and present, with emphasis on the arts, philosophy, literature, and music.

141. Russian Civilization (3) II

(Same course as Humanities 153)

Conducted in English.

Continuation of Russian 140.

201. History of the Russian Language (3)**202A-202B. Old Church Slavic (3-3)****203. Slavic Linguistics (3)****204A-204B. The Soviet Novel and Short Story (3-3)****205. Russian Poetry from Pushkin to the Present (3)****253. Russian Literary Criticism (3)****255. Seminar: A Major Author or Movement (3)****290. Research and Bibliography (3)****298. Special Study (1-3)****299. Thesis (3)**

Greek

See Classical and Oriental Languages.

Health Science and Safety

In the College of Professional Studies

Faculty

Emeritus: Kitzinger

Professors: Burgess (Chairman), Grawunder, Harper, McTaggart

Associate Professors: Boskin, Fellers

Assistant Professors: Barnes, Bender, Collins, Kessler, Noto, Sorochan

Offered by the Department

Master of Arts in health science.

Minor in health science with the B.S. in applied arts and sciences.

Teaching major in health sciences with specialization in secondary teaching.

Teaching minor in health sciences with specialization in both elementary and secondary teaching.

Health Major

With the B.S. Degree in Applied Arts and Sciences

Emphasis in Community Health

Preparation for the major. Health Science and Safety 21, 29, 65; Home Economics 4A; Zoology 8; Biology 9 or 22 and 23; Psychology 1, 12; and Sociology 1. (26 or 27 units.)

Major. A minimum of 36 upper division units to include Health Science and Safety 100, 101, 140, 145, 146, 160, 165, 169, 175, 176, 177; the remaining units to be selected from health science and safety or closely related fields with approval of the adviser.

Emphasis in Industrial Safety Education

Preparation for the major. Health Science and Safety 21, 29, 65; Home Economics 4A; Zoology 8; Biology 9 or 22 and 23; Psychology 1, 12; and Sociology 1. (26 or 27 units.)

Major. A minimum of 36 upper division units to include Health science and Safety 100, 140, 145, 146, and 177; Psychology 121, 122, and 124; Sociology 120; the remaining units to be selected from health science and safety or closely related fields with approval of the adviser.

Emphasis in Traffic Safety

Preparation for the major. Biology 9, or 22 and 23; Health Science and Safety 21, 29, 65; Home Economics 4A; Psychology 1, 12; Sociology 1; and Zoology 8 (26 or 27 units).

Major. Thirty-six upper division units to include Health Science and Safety 100, 140, 145, 146, 147, 148, 149, 177; Psychology 124; the remaining units to be selected from health science or closely related fields with approval of the adviser.

Health Science Minor

The minor in health education consists of from 15 to 22 units in health science and safety, nine units of which must be in upper division courses approved by the departmental adviser in health science and safety; courses to include Health Science and Safety 100, and 65 or 160.

Health Sciences Major

For the Standard Teaching Credential, Specialization in Secondary Teaching

Preparation for the major. Health Science and Safety 21, 29, 65; Home Economics 4A; Zoology 8; and Biology 9 or 22 and 23; Sociology 1; and Psychology 1. (24 units.)

Teaching Major (Undergraduate). A minimum of 36 upper division units to include Health Science and Safety 100, 145, 146, 153, 155, 165, 172; Psychology 106; and Sociology 140. Remaining units to be selected from health science and safety and closely related fields. In addition students must complete School of Education requirements which include Education 121P and Health Science and Safety 151.

Postgraduate Year. Six units of postgraduate courses in the major or minor acceptable toward the credential.

Health Sciences Minor

For the Standard Teaching Credential

This minor consists of Education 121P, Health Science and Safety 21, 29, 65, 100, 145, and 146, and six units of electives in health science and safety chosen in consultation with the departmental adviser. Candidates for elementary teaching must in addition take Health Science and Safety 150; candidates for secondary teaching take Health Science and Safety 151.

21. Principles of Healthful Living (2) I, II, S

An application of modern knowledge to the development of understandings, attitudes, and practices essential to healthful living. Fulfills statutory requirement in public safety.

29. Physiology of Reproduction (1) I, II

A series of lectures and discussions dealing with normal and abnormal physiology and anatomy of reproduction; facts and frauds in sex hygiene, and related topics.

65. Community Health (3) I, II

Community health problems; the role of the citizen, of the public, and of community health agencies in promoting and protecting the health of the community.

100. Introduction to Health Science and Safety (3) I

History and principles of health science and safety and its role in modern society. An orientation course for students with a professional interest in health science and safety.

101. The Change Process and Health Science and Safety (3) I

Prerequisite: Health Science and Safety 21.

Attitude formation, behavior change, decision-making, perception, motivation, group behavior, etc., and their relationship to the practice of health science and safety.

122. Concepts of Health Science (3) I, II

Development and application of concepts in individual, family, and community health. Involvement in health project work. Not open to students with credit in Health Science and Safety 21.

140. Traffic Safety (3) I

Problems of traffic safety and programs designed to deal with them.

145. Safety Education and Accident Prevention (3) I, II, S

Principles of safety and safety education as applied to the home, school, industry, traffic, recreation, and fire prevention.

146. Instructor's Course in First Aid (3) I, II, S

Standard Red Cross course for instructors in first aid plus medical-legal problems of emergency care of accident victims.

147. Traffic Safety and Driver Education (3) I, II, S

Three lectures and one hour of laboratory.

Analysis of traffic accidents; natural and man-made laws; safe use and care of vehicles; instructional approaches and the development of one's own driving and teaching skills.

148. Advanced Driver Education and Driver Training (3) I, II, S

Two lectures and three hours of laboratory.

Prerequisites: Health Science and Safety 145 and 147.

Principles and procedures in organizing and conducting programs in driver instruction with emphasis on behind-the-wheel training. Students will teach high school youngsters to drive.

149. Multi-media Techniques in Driver Instruction (3) I, II

Prerequisite: Health Science and Safety 147.

Teaching devices and techniques in driver education and driver training, including multi-media approaches, psycho-physical testing and multiple car driving ranges; major emphasis on driver simulators, their operation and basic principles.

150. Health Education for Elementary Teachers (2) I, II, S

Prerequisite: Health Science and Safety 21 or 122.

The teacher's function in the different aspects of the elementary school health program, with emphasis upon the planning and presentation of instructional materials and upon community resources and relationships. Not open to students with credit in Health Science and Safety 151.

151. Health Education for Secondary Teachers (2) I, II, S

Prerequisite: Health Science and Safety 21 or 122.

Health status of adolescents and of the teacher's function in the secondary school health program. Emphasis is placed upon statutory requirements in stimulants and narcotics and upon safety and accident prevention. Not open to students with credit in Health Science and Safety 150.

153. Administration of the School Health Program (3) II

Administrative responsibilities of the school health program. Principles, policies, and practices involved in health instruction, health services, environment, legal implications, and community relationships.

154. Workshop in Health Science and Safety (1-3)

Selected problems in health science and safety are used as a basis for workshop experiences. Maximum credit six units; maximum credit three units applicable on a master's degree.

155. Sex Education in the Schools (3) I, II

Prerequisite: Health Science and Safety 150 or 151.

Philosophy, current procedures, and materials needed for the development of healthy attitudes and scientific knowledge appropriate to teaching sex education.

160. Introduction to Public Health (3) I

Prerequisite: Health Science and Safety 65.

Philosophy, development, organization, administration, and legal aspects of public health in the United States. Disease prevention and control, health education, and the other functions and activities of official health departments, voluntary agencies, private physicians and others engaged in professional health work.

165. Communicable and Non-Communicable Diseases (3)

Causes, prevention and control of communicable, degenerative and chronic health disorders.

169. World Health (3) II

Prerequisite: Health Science and Safety 65.

Health status of selected populations; international approaches to the attainment of world health. Special emphasis on the work of the World Health Organization.

171. Institute on Current Health Issues (1) S

A critical appraisal and analysis of selected contemporary health issues. May be repeated with different subject matter. Maximum of three units may be applied toward a bachelor's degree.

172. Habit Forming Substances (3) I, II

Stimulants, depressants and hallucinogens; use and abuse.

175. Health in Later Maturity (3) I

An approach to the conservation of human resources, with emphasis on understandings, attitudes, and practices related to health in later maturity. Designed for those with a personal or professional interest in the field.

176. Health and Medical Care (3) II

Prerequisite: Senior or graduate standing with a major or minor in health education or closely related areas.

Health values, concepts, and attitudes; health products and facilities; hospital care and hospitalization plans; governmental health controls; economic and cultural influences upon health and medical care; professional contributions, relationships, and careers; national and international health programs. Not open to students with credit in Sociology 126.

177. Environmental and Occupational Health (3) I

Prerequisite: Health Science and Safety 65.

Environmental hazards of living and working in this modern technological world stressing air pollution, water pollution, and occupational safety.

192. Critical Analysis of Professional Literature (3) II

Investigation and study of selected literature in the field which has important bearing on health, physical education, and recreation programs in the school and community. Evaluation of literature content on basis of specific criteria.

197. Supervised Field Experience (1-3) I, II

Prerequisite: Senior standing and consent of the chairman of the department.

Supervised practical experience in local health agencies.

200. Seminar (3)**201. Interdisciplinary Factors in Health Education (3)****202. Measurement and Evaluation in Health Education (3)****240. Administration of Traffic Safety Education (3)****245. School Safety Programs and Procedures (3)****270. Problems in Disease Control (3)****271. Drug Abuse Education (3)****298. Special Study (1-3)****299. Thesis (3)**

Hebrew

See Classical and Oriental Languages.

History

In the College of Arts and Letters

Faculty

Professors: Berge (Chairman), Coox, Hanchett, W., Merrill, Munter, Nasatir, Norman, Pincetl, Rader, Ragen, Ridout, Rohfleisch, K., Ruetten

Visiting Professor: Hurwitz

Associate Professors: Appleby, Cheek, Cox, T., Schatz, Smith, C. D., Smith, R. T., Starr, Steele, Strong, Weber

Assistant Professors: Bartholomew, Chu, Cuniff, Davies, Detweiler, Dill, Du-Fault, Dunn, Filner, Flemion, J. Stoddart, Flemion, P., Green, M., Heyman, Hoidal, McDonald, J., Oades, O'Brien, A., Phillips, W. D., Rosen, Stites, Sutherland, Vanderwood, Vartanian

Offered by the Department

Master of Arts degree in history; and a Master of Arts degree for teaching service with a concentration in history.

Major in history with the A.B. degree in liberal arts and sciences.

Minor in history.

Teaching major in history with specialization in secondary teaching.

Teaching minor in history with specialization in secondary teaching.

Major

With the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. History 4A-4B, or 8A-8B, or 9A-9B, or 17A-17B. (6 units.)

Major. A minimum of 24 upper division units in history to include History 198 and a minimum of a year of concentration in **each of three** of the following fields: (a) Ancient and Medieval; (b) Modern Europe; (c) United States; (d) Latin America; (e) South, Southeast, and East Asia; (f) Africa and the Middle East. These courses must be selected under the guidance of the chairman of the department.

Minor

The minor in history consists of 15 units in history to include six sequence units in the lower division. Nine units must be in upper division courses, including a year course.

Major

For the Standard Teaching Credential, Specialization in Secondary Teaching

Requirements are the same as the requirements for the undergraduate major for the A.B. degree in liberal arts and sciences, as outlined above, with the provision that a minimum of a year concentration in U.S. history must be included in the upper division work. In addition, students must complete, in the postgraduate year, a minimum of six upper division or graduate units.

Minor

For the Standard Teaching Credential, Specialization in Secondary Teaching

The minor in history for secondary teaching consists of a minimum of 21 units to include the following courses: in the lower division, History 4A-4B, or 8A-8B, or 9A-9B, or 17A-17B; and 15 additional units in history to include not less than 12 upper division units selected with the approval of the adviser.

4A-4B. Western Civilization (3-3)

Prerequisite: History 4A is prerequisite to History 4B.

European institutions, culture, and thought from ancient times to the present.

8A-8B. The Americas (3-3)

The history of the western hemisphere from its discovery to the present time. This year course meets the graduation requirements in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government.

9A-9B. Asian Civilization (3-3)

Asian institutions, cultures, and thought from ancient times to the present. Semester I: Traditional Asian civilization. Semester II: Asia since the impact of the West.

17A-17B. American Civilization (3-3)

Prerequisite: History 17A is prerequisite to History 17B.

The political and social development of the United States, with emphasis upon the rise of American civilization and ideals. This year course meets the graduation requirement in American history, institutions and ideals. The first semester course, 17A, also meets the requirement in U.S. Constitution; and the second semester course, 17B, meets the requirement in California state and local government. Ordinarily not open to students with credit for Political Science 2, 71A, or 71B. History 17A-17B may be taken by such students with the consent of the chairman of the History Department.

101A-101B. The Contemporary World in Historical Perspective (3-3)

Prerequisite: History 4B.

Trends and developments in the recent past which can contribute to an understanding of the problems of our age.

102. Great Historians and Historical Literature (3) I, II

Lectures and readings in the history of history and the works of major historians. Open to all upper division students; especially recommended for history and social science majors.

105A-105B. War and Civilization (3-3)

The political and social implications of warfare, of the development of military technologies, and of changing concepts of military organization. Semester I: through the 18th century. Semester II: French Revolution and Napoleonic Wars to the present.

111A-111B. Ancient History (3-3)

Fall semester: Greece to the Roman Conquest.

Spring semester: Rome to the 5th century A.D.

121A-121B. Europe in the Middle Ages (3-3)

Prerequisite: History 121A is prerequisite to 121B

European social, cultural, and political developments from the fall of Rome to the Renaissance.

122. The Holy Roman Empire to the Great Interregnum (3)

Prerequisite: History 4A or 121A-121B.

The multi-national Holy Roman Empire and its intellectual and social ramifications. Church-state relationships and the development of constitutionalism.

123. The Byzantine Empire (3)

The social, political, cultural, and economic development of the Eastern Roman Empire from the crisis of the third century to the fall of Constantinople in 1453. (Formerly numbered and entitled, History 156, The Byzantine Empire and Its Successors.)

131A-131B. Renaissance and Reformation (3-3)

Persons and events connected with the social, political, cultural, economic and religious change between 1300 and 1600.

133A-133B. Europe in the 17th and 18th Centuries (3-3)

Prerequisites: History 4A-4B.

Europe from the Thirty Years War to the French Revolution. Emphasis is on Western Europe and the growth of French preponderance. Semester I: The rise of absolutism to 1713. Semester II: The Enlightenment and the nature of the "old regime" to the eve of revolution. (Formerly numbered History 141A-141B.)

135A-135B. Europe in the 19th Century (3-3)

Prerequisite: History 135A is prerequisite to 135B.

Social, political, and economic developments of 19th century Europe.

136A-136B. Intellectual History of Europe in the 19th Century (3-3)

Prerequisite: History 4A-4B. History 136A is prerequisite to 136B.

An analysis of the dominant ideas of the 19th century. Course work is based primarily upon contemporary source materials. (Formerly numbered History 143A-143B.)

137A-137B. Europe in the 20th Century (3-3)

Prerequisite: History 137A is prerequisite to 137B.

Political and social developments from 1870 to the present. (Formerly numbered History 144A-144B.)

138A-138B. Diplomatic History of Modern Europe (3-3)

Prerequisite: History 4A-4B.

Diplomatic relations of the various European states with European and non-European powers. First semester: From the Concert of Europe (1815) to the Era of *Realpolitik* in the late 19th century. Second semester: The diplomatic backgrounds and results of two wars. (Formerly numbered History 145A-145B.)

141A-141B. History of Scandinavia (3-3)

The major political, economic, and social developments from the Stone Age to the present. Semester I: Stone Age to 1814. Semester II: 1814 to present.

142A. The French Revolution and Napoleonic Era (3) I

Prerequisite: History 4A-4B.

France on the eve of the Revolution; the Great Revolution, 1789-1799, the Napoleonic Era.

142B. Modern France (3) II

Prerequisite: History 4A-4B.

The development of France since 1815.

143A-143B. The Iberian Peninsula (3-3)

A cultural and political survey of Portugal and Spain as well as their empires. Semester I: from medieval times to the early modern period. Semester II: from early modern times to the present. (Formerly numbered and entitled History 149A, Modern Spain.)

145A-145B. Central and Eastern Europe (3-3)

Prerequisite: History 4A-4B.

Semester I: Political, social, and intellectual study of the various nationalities inhabiting the area from the Baltic to the Aegean Sea. Semester II: developments since the late 18th century.

146A-146B. Germany and Central Europe (3-3)

Prerequisite: History 4A-4B.

The political, social, and cultural record of the Germanic peoples of Northern and Central Europe from Tacitus to the present.

147A-147B. Russia and the Soviet Union (3-3)

Semester I: Political, social, and economic development of Russia in Europe and Asia from the earliest times to the present. Semester II: Emphasis on the 20th century.

149. Modern Italy (3)

The development of Italy from 1815 to the present. (Formerly numbered History 149B.)

151A-151B. England (3-3)

Prerequisite: History 151A is prerequisite to History 151B.

Political and social history of England from the earliest times to the present day, stressing the origins of American institutions and social patterns. Recommended for majors in English.

152A-152B. Constitutional History of England (3-3)

Evolution of the common law and the development of parliamentary institutions.

153A-153B. Tudor and Stuart England (3-3)

Semester I: The Age of the Tudors. Semester II: England during the Stuart Dynasty, 1603-1714.

154A-154B. Modern Britain (3-3)

Semester I: The development of constitutional and social patterns from the Glorious Revolution to the French Revolution, emphasizing the immediate background to the American Revolution. Semester II: The French Revolution, the rise of parliamentary democracy, the Victorian age and the political thought from the Utilitarians to the Fabians.

155A-155B. History of the British Empire and Commonwealth (3-3)

British expansion, the founding of the colonies of settlement, and development of colonial policy. Semester II: Creation of the Commonwealth and the liquidation of the Empire.

157A-157B. History of the Near East from the 7th Century to Modern Times (3-3)

Semester I: Medieval Islam from the 7th century A.D. to the rise of the Ottoman Turks. Semester II: The Modern Near East and the impact of the West.

(Formerly numbered and entitled History 157, The Arab States, Israel, and Iran.)

158A-158B. Africa (3-3)

Semester I: Civilization of pre-colonial Africa both north and south of the Sahara from the advent of Islam to 1880. Semester II: Colonial and post-colonial Africa.

160A-160B. Latin America (3-3)

Semester I: Colonial Period to approximately 1825. Semester II: Republican Latin America. Not open to students with credit in History 8A-8B.

161A-161B. Mexico (3-3)

Prerequisite: History 8A-8B or 160A-160B.

Colonial and modern Mexico. Semester II: Emphasis on the 20th century.

162A-162B. History of Brazil (3-3)

Prerequisite: History 8A-8B or 160A-160B.

The fusion of the Portuguese heritage with Indo-American and Negro elements to form the unique culture of the major nation in the tropics. Semester I: Colony and Empire to 1889. Semester II: Republic, 1889-present.

163A-163B. The Caribbean Area (3-3)

Prerequisite: History 8A-8B or 160A-160B.

Development of the Caribbean area with emphasis on the 20th century.

164. The Pacific Coast Nations of South America (3)

Prerequisite: History 8A-8B or 160A-160B.

The fusion of the native cultures and institutions with those of Spain to form the modern nations of the Pacific Coast of South America.

165A-165B. Economic, Social, and Intellectual Development of Latin America (3-3)

Prerequisite: History 8A-8B or 160A-160B.

Designed for students in the Latin American Studies program, foreign trade, and foreign service.

167A-167B. Diplomatic History of Latin America (3-3)

Prerequisites: History 8A-8B or six units of upper division history.

Origins of Inter-Americanism; relations among the Latin American nations; the origins and development of the American States; Latin America in World Affairs.

168. The Platine Nations (3)

Prerequisite: History 8A-8B or 160A-160B.

The historical development of Argentina, Uruguay, and Paraguay, with emphasis on the 20th century.

171A-171B. Rise of the American Nation (3-3)

Prerequisite: History 171A is prerequisite to History 171B.

The settlement and development of the British colonies in North America and the American Revolution. Stresses the creation of the American nation through modification of Old World institutions in the new environment.

172A-172B. Development of the Federal Union (3-3)

Prerequisite: History 172A is prerequisite to History 172B.

Political, cultural, social and intellectual aspects of the Confederation and early national period; the Convention of 1787 and establishment of the Constitution; the administrations of Washington through John Quincy Adams. This year-course meets the graduation requirements in American history, institutions and ideals; 172A meets the requirement in U. S. Constitution; and 172B includes materials which meet the requirements in California state and local government.

173A-173B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3)

Lectures and readings on Jacksonian democracy, territorial expansion, the Mexican War, the slavery controversy, the Civil War and Reconstruction.

174. The Rise of Modern America, 1868-1900 (3)

Economic, social, political, and intellectual developments from the end of the Civil War to the close of the 19th century.

175A-175B. The United States, 1901-1945 (3-3)

The age of reform and the United States as leader of the free world.

175C. The United States in the Nuclear Age (3)

The United States since World War II.

176A-176B. American Foreign Policy (3-3)

Semester I: The development of American foreign policy since 1776. Semester II: Developments since 1916. This year course meets the graduation requirements in American history, institutions, and ideals.

177A-177B. Constitutional History of the United States (3-3)

American constitutional history since the establishment of the federal government. This year course meets the graduation requirement in U.S. Constitution and in American history, institutions and ideals.

178A-178B. The Development of American Capitalism (3-3)

The changes in agriculture, industry, labor, banking, transportation, and commerce in a capitalist society with emphasis on the prominent personalities who made the changes possible.

179A-179B. Intellectual History of the American People (3-3)

The ebb and flow of ideas in the United States since the founding of the English colonies, with attention devoted to social and political thought. This year course meets the graduation requirement in American history, institutions and ideals.

180. Selected Studies in History (3)

Topics in the various fields of history, such as biography, war, science, technology, urbanization, minority groups, immigration, and capitalism. May be repeated for a maximum of six units.

181A-181B. The Westward Movement (3-3)

The American frontier: Expansion, exploration, settlement and building of the new states, with emphasis upon frontier problems of defense, communications, finance, etc.; the development of cultural institutions. The causes, effects and results of the frontier experiences of the American people. This year course meets the graduation requirement in American history, institutions and ideals.

182A-182B. The Spanish Borderlands and the American Southwest (3-3)

Semester I: Development and colonization of the Spanish Southwest; the growth and influence of Spanish institutions. Semester II: United States' acquisition of the Southwest; the development and problems of expansion, water, industry, transportation, immigration, culture, and agriculture in the region of semi-aridity.

183A-183B. Black American Civilization (3-3)

Semester I: The Black minority group and its contributions and challenges to American civilization. African backgrounds, slavery, the abolitionists, the free Black. Semester II: Ghetto life, leadership personalities, and protest movements.

(Formerly numbered and entitled History 183, The Negro in American Civilization.)

184A-184B. United States History (3-3)

United States history, 1492-present. Primarily for history minors and social science majors and minors. Semester I: to 1877; Semester II: 1877 to present. Not open to students who have completed History 17A-17B or equivalent.

185. Conservation History of the United States (3)

The relationship of Americans to their environment from colonial times to the present with emphasis on how attitudes and values have affected personal behavior and public policy toward the land.

189A-189B. California (3-3)

Political institutions; social, cultural, economic, and intellectual development; international background. Semester I: to 1850: Spanish and Mexican heritage. Semester II: 1850 to the present. History 189B will fulfill the requirement in California state and local government.

190A-190B. Southeast Asia (3-3)

Semester I: Cultural traditions of Southeast Asian peoples. Indigenous institutions and the influence of China, India, and Islam. Semester II: Southeast Asia in the modern world. Patterns of foreign stimulus and local response among the peoples of the area.

191A-191B. The Far East (3-3)

Particular, but not exclusive, emphasis on Asian-Western relations. Semester I: Through the 19th century. Semester II: The 20th century.

192. Chinese Civilization (3) I

Chinese internal history and institutions during the period of relative isolation; religions, philosophy, literature, and the arts.

193. China in Modern Times (3) II

The impact of the West on China's history and civilization, particularly in the nineteenth and twentieth centuries with emphasis on internal developments.

194. Japanese Civilization (3) I

Japanese internal history and institutions during the period of indigenous development and Chinese influence including religions, philosophy, literature, and the arts.

195. Rise of Japan as a Modern State (3) II

The impact of the West on Japan's history and civilization, particularly in the nineteenth and twentieth centuries with emphasis on internal developments.

196A-196B. The Indian Sub-Continent (3-3)

Semester I: The historical and cultural development of the sub-continent from earliest times through Muslim rule. Semester II: British rule and its legacy in the sub-continent. The international relations of India and Pakistan.

197A-197B. Intellectual History of Modern Asia (3-3)

Asian intellectual history during the 19th and 20th centuries, with special attention to social and political thought.

198. The Writing of History (3) I, II

Prerequisite: History major or 12 upper division units of history.

Historical method and research in some aspect of history.

201. Seminar in Historical Method (3)**202. Seminar in Historiography (3)****240. Directed Reading in Selected Topics (3)****241. Directed Reading in United States History (3)****242. Directed Reading in European History (3)****243. Directed Reading in Asian History (3)****244. Directed Reading in Latin American History (3)****245. Directed Reading in African and Middle Eastern History (3)****246. Directed Reading in Ancient and Medieval History (3)****250. Seminar in the Philosophy of History (3)****251. Seminar in United States History (3)****252. Seminar in European History (3)****253. Seminar in Asian History (3)****254. Seminar in Latin American History (3)****255. Seminar in African and Middle Eastern History (3)****256. Seminar in Ancient and Medieval History (3)****296. Area Studies in History (1-3)****297. Research (3)****298. Special Study (1-3)****299. Thesis (3)**

Home Economics

In the College of Professional Studies

Faculty

Emeritus: Comin, Talboy

Professors: Cannon, Dorris, Thiel (Chairman), Thomas, A.

Associate Professors: Anderson, Z., Campbell, Price, Q., Reed, Somerville

Assistant Professors: Dickerson, Gunning, Hambleton, Kwallek, Martin, J., Martin, M., Milne, T., Morris, J., Schupp

Offered by the Department

Master of Science degree in home economics.

Major in home economics with the A.B. degree in applied arts and sciences.

Minor in home economics.

Teaching major in home economics with specialization in secondary teaching.

Teaching minor in home economics with specialization in secondary teaching.

Major

With the A.B. Degree in Applied Arts and Sciences

The major in home economics is available in two areas of emphasis: (1) General home economics and (2) Food and nutrition.

General Home Economics

Preparation for the major. Home Economics 2, 3, 15, 35, 40, 45, 70; Anthropology 1C; Art 2A; Biology 1; Chemistry 2A-2B; Economics 1A; Physics 5; and Sociology . . . (44 units.)

Major. A minimum of 24 upper division units to include Home Economics 100, 115, 135, 143, 151, 152, 171, and three units selected from home economics courses.

Food and Nutrition

This program is planned for students interested in qualifying professionally in the field of dietetics, institutional food management or commercial home economics. A student who successfully completes this program and receives departmental recommendation is eligible to apply for a year of internship under auspices of the American Dietetic Association. Upon completion of an administrative food clinic or dietetic internship, or a three-year apprenticeship under a qualified dietitian in a recognized hospital, a student is eligible for membership in the American Dietetic Association and recognition as a qualified dietitian. Additional food and nutrition careers include extension service, teaching, business, health agencies and research.

Preparation for the major. Home Economics 2, 3, 4A, 15, 35, 40, 45, 70; Biology 22; Business Administration 1A; Chemistry 2A-2B, 3; Economics 1A; Physics 5; Sociology 1; and Microbiology 1. (50 units.)

Major. Thirty-six units to include Home Economics 100, 102, 103, 104, 105, 106, 151, 152, 180, 182; and six units to be selected with consent of the adviser, from Business Administration.

Minor

The minor consists of 18 units in home economics, six of which must be upper division.

Major for the Standard Teaching Credential

For specialization in secondary teaching, the requirements are the same as for the degree with an emphasis in general home economics. In addition, in their post-graduate year students must complete six units in home economics selected with approval of the adviser.

Minor for the Standard Teaching Credential

For specialization in secondary teaching, the minor consists of 20 units of home economics, six of which must be upper division. The courses must be approved by the adviser.

1. Fundamentals of Home and Family Life (3) I, II

General concepts of family relationships and effective use of family resources. General Education course open to men and women. Not open to Home Economics majors.

2. Orientation to Home Economics as a Profession (1) I, II

Introduction to the opportunities and requirements in various professional fields for home economists.

3. Food Selection and Preparation (3) I, II

One lecture and six hours of laboratory.

The production, selection, composition, preservation, nutritive value and preparation of foods.

4A. Fundamentals of Nutrition (3) I, II

Nutrition as applied to the stages of the normal life cycle.

4B. Nutrition Laboratory (1) Irregular

Three hours of laboratory.

Prerequisite: Limited to students in the nursing program.

Principles of nutrition applied to food preparation, meal planning, and special diets.

14-S. Workshop for School Lunch Personnel (1) S

Open to school lunch personnel only.

The following areas are included:

A. Nutrition for School Lunches.

B. Beginning Meal Planning.

C. Food Purchasing.

D. Sanitation and Safety.

E. Work Simplification and Personnel Management.

F. Advanced Menu Planning.

G. Record Keeping and Cost Analysis.

No area may be repeated for credit, but credit may be earned in two areas concurrently. Maximum credit seven units. May not be used as part of a major or minor in home economics or homemaking education.

15. Clothing and Textiles (3) I, II

One lecture and six hours of laboratory.

Commercial patterns and their adaptation; fitting and construction; selection and care of textiles.

19. Textiles (3) I, II

One lecture and six hours of laboratory.

Fibers, yarn, fabric construction, and finishes as related to selection, use, and care.

23. Fabric Structure and Design Processes (3) I, II

Six hours of activity.

Prerequisite: Art 2A.

A study of stitchery, knitting, crocheting, weaving, macramé, and textile decoration.

35. Marriage and Family (3) I, II

Love, maturity, dating, compatibility, conflict as they relate to preparation for successful marriage and family living. Not open to students with credit in Social Welfare 30, or Sociology 35.

40. Family Income Management (3) I, II

Financial problems involved in the effective management of the family resources.

45. Fundamentals of Housing and Design (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Art 2A.

Historical and contemporary interiors. Architectural, structural, and artistic factors of housing as related to family needs.

70. Principles of Child Development and Guidance (3) I, II

Three lectures and one hour of observation.

Prerequisites: Psychology 1 and Sociology 1.

Growth and development of the child from conception through adolescence; his relationships with his family and peers; and implications for guidance.

Not open to students with credit in Psychology 106, or Education 111.

100. Advanced Foods (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 3 and Chemistry 2B.

Fundamentals and practices of scientific food preparation. Development of standards in food preparation, meal planning, and service.

101. Family Food Management (3) I

Six hours of laboratory.

Not open to home economics majors and minors.

Planning, organizing, preparing and serving attractive well balanced meals for different income levels, for various occasions.

102. Advanced Nutrition (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 4A and Chemistry 2B.

Fundamental principles of human nutrition; planning, calculating and evaluating diets to meet human requirements; animal feeding experiments.

103. Quantity Cookery (3) I

One lecture and six hours of laboratory.

Prerequisites: Home Economics 100 and Business Administration 1A.

Application of basic principles to quantity foods, including experiences in planning, purchasing, storage, preparation, serving and cost accounting for institutional food service. Laboratory experience is provided in the campus cafeteria and in hospitals.

104. Institutional Food Organization and Management (3) II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 103.

Problems involved in the organization of food service units, problems of administration, cost of food service, specifications, operation and care of equipment for institutions, and routing of work. Special projects and field trips.

105. Experimental Foods (3) II

One lecture and six hours of laboratory.

Prerequisite: Home Economics 100.

Physical and chemical tests applied to problems in processing and preparation of food. Studies relate to protein foods; batters, doughs and sugar cookery; emulsions, fats and oils; and developments in food preservation.

106. Diet Therapy (3) I

One lecture and six hours of laboratory.

Prerequisite: Home Economics 102.

Planning and preparation of special diets and food requirements in pathological conditions.

108. Advanced Institution and Restaurant Management (3) Irregular

One lecture and six hours of laboratory.

Prerequisites: Home Economics 103 and 104.

Purchasing food and selecting and maintaining equipment based on the needs of various types of food service and institutional layout.

109. Meal Management and Service (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 3 and 4A.

Planning, organizing, preparing, and serving meals with consideration of nutritional needs and the time, energy, and money resources available.

115. Advanced Clothing (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Home Economics 15.

Fitting and construction processes applied to wool, silk, and synthetics, emphasizing fundamental principles of handling.

116. Advanced Clothing Design (3) I

One lecture and six hours of laboratory.

Prerequisite: Home Economics 115.

Principles of tailoring; planning and construction of coats and suits.

117. Clothing Selection (3) I, II

Appropriate clothing for the individual and the family. Basic art principles, fashion trends, history of costume, buying practices; current legislation in textiles and clothing.

118. Flat Pattern Design (3) II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 115 and Art 2A.

Problems involving principles and techniques of flat pattern construction. Development of basic sloper for purpose of interpreting new designs. Investigation of sources of inspiration and their relationship to significant trend in design.

119. Textile Analysis and Testing (3) II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 15 and Chemistry 2B.

Analysis based on physical and chemical tests for quality differences due to variation in fibers, content, structure, and finishes and their suitability for specified uses.

120. Clothing and Human Behavior (3) II

Prerequisite: Consent of instructor.

Socio-economic influences on consumer clothing behavior patterns.

121. Clothing Design: Draping (3) I

Six hours of activity.

Prerequisite: Home Economics 15.

Experience in creative designing through fabric manipulation. Designer problems related to mass-production techniques.

122. Clothing Design: Historical Influences (3)

One lecture and six hours of laboratory.

Prerequisite: Home Economics 115.

Chronological analysis of men's and women's fashions providing inspiration for original creations in clothing design.

123. Fabric Structure and Design Processes (3) I, II

Six hours of activity.

Prerequisite: Art 2A.

A study of stitchery, knitting, crocheting, weaving, macramé, and textile decoration.

135. Family Interaction (3) I, II

Prerequisites: Psychology 1, and Home Economics 35.

Marriage adjustment and family interaction throughout the family life cycle.

136. Family Study (3) I, II

Prerequisite: Home Economics 35.

Dynamics of family living; attitudes, practices, social and psychological interaction, and family life patterns in different cultures, social classes and ethnic groups. (Formerly Home Economics 135.)

140. Family Financial Problems and Practices (3) II

Prerequisite: Home Economics 40.

Financial problems and practices of families; decision-making with respect to market goods and services; consumer protection programs.

143. Household Equipment and Processes (3) II

One lecture and six hours of laboratory.

Prerequisite: Physics 5 and Chemistry 2B.

Study and laboratory experience to acquaint students with current research findings in relation to equipment and household supplies. Emphasis placed upon characteristics and composition of household materials, use and care.

145. Family Housing (3) II

One lecture and six hours of laboratory.

Prerequisite: Home Economics 45.

Advanced housing problems at various stages of the family life cycle and the different socio-economic levels.

150. Principles of Home Management (3) I, II

Open to both men and women, but not open to home economics majors.

Efficient management of the home, family cooperation, establishment of goals, and productive use of money, time, and energy. Not open to students with credit in Home Economics 151.

151. Home Management Theory and Analysis (3) I, II

Prerequisite: Home Economics 40.

Management process and its relationship to the use of resources based upon the decisions, values, goals, and standards of the family. Adaptation of work simplification techniques for use in studies of activities in homes and home economics classes.

152. Home Management Laboratory (3) I, II

Five weeks' residence in a family-size unit.

Prerequisites: Home Economics 40, 151, and written request made to department chairman one year prior to enrollment.

Application of theories and principles of all disciplines of home economics.

153. Supervised Field Work in Home Management (3) I, II

Prerequisites: Home Economics 3, 40, 135, 151, 171 and consent of instructor.

Management and social problems as they relate to the home and family. Supervised field work with various community agencies and selected families.

160. Merchandise Analysis (3) II

Contemporary problems of production and distribution of textiles and clothing.

170. Human Development: Infancy (3) I, II

Prerequisite: Home Economics 70.

Physiological, psychological, social and cultural development and behavior of the human organism through age two.

171. Human Development: Early Childhood (3) I, II

Two hours of laboratory prearranged.

Prerequisite: Home Economics 70.

Development, behavior, and guidance of the preschool child. Observing, recording and interpreting behavior.

175. The Nursery School Program (3) I

Two lectures and two hours of participation.

Prerequisite: Home Economics 171.

Types of programs for the nursery school with consideration of methods and materials evaluated in terms of needs of young children.

176. Creative Experiences for Young Children (3) II

Prerequisite: Home Economics 175.

Exploration of spontaneous creativity at the preschool age; evaluation of materials best suited for use in art, music, dance, and language for the young child.

177. Administration and Supervision in Nursery Schools (3) Irregular

Prerequisites: Home Economics 175 and 176 or teaching experience in a nursery school.

Problems of organization in conducting schools for young children; interrelationships of staff; personnel practices; communication with teaching staff, parents, and community; records and reports.

178. Methods and Materials in Parent Education (3) II

Prerequisite: Consent of instructor.

An investigation of philosophy, curriculum instruction, current trends, and issues in the teaching of child guidance to parents.

179. Advanced Child Study (3) I, II

Prerequisites: Nine units in child development.

Readings and interpretations of scientific literature which contribute to an understanding of child behavior. Physical, social, and psychological factors which determine the direction of human development.

180. Food Demonstration Techniques (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Nine units in home economics courses.

Organizing materials and developing techniques for demonstrations; observation, evaluation and participation in professional demonstrations for photography, the classroom and mass media.

181. Materials and Techniques for Teaching Home Economics (2) II

Two hours activity.

Prerequisite: Education 121C or concurrent registration.

Development and use of audio-visual and other instructional materials.

182. Educational Practices and Instructional Resources (3)

Prerequisite: Fifteen units of home economics.

Principles of learning as they relate to teaching home economics to adults. Organization of material; selection, use and evaluation of teaching techniques.

190. Advanced Studies in Home Economics (2-6) Irregular

Prerequisite: Twelve upper division units in home economics.

Advanced study of selected topics. Maximum credit nine units.

No more than six units may be applied toward either the bachelor's or master's degree.

200. Seminar: Foods and Nutrition (3)**203. Advanced Readings in Food Technology (3)****204. Advanced Readings in Nutrition (3)****205. Essay for Nutrients in Foodstuffs and Tissues (3)****206. Physiological Bases of Diet Therapy (3)****207. Child Nutrition (3)****215. Seminar: Clothing (3)****216. Seminar: Textiles (3)****219. History of Textiles and Clothing (3)****231. Family Life Education (3)****234. Seminar: Marriage Adjustment (3)****240. Seminar in Family Economics (3)****251. Seminar in Home Management (3)****270. Seminar: Child Development and Guidance (3)****271. Advanced Readings in Human Development (3)****281. Seminar: Home Economics Education (3)****282. Current Developments in Home Economics Education (3)****290. Bibliography and Methods of Research (3)****298. Special Study (1-3)****299. Thesis (3)**

Humanities

An Interdisciplinary Program Administered by the Dean of the College of Arts and Letters

Offered by the College

Teaching minor in Humanities, with concentration in Latin, for secondary teaching. See Education.

Curriculum in Humanities. See Interdisciplinary and Preprofessional Programs.

All classes are conducted in English.

30A-30B. The Legacy of Israel (3-3) I, II

Judaic culture from the post-biblical period to the present, its nature, development, values, and interactions with other cultures. Semester I: post-biblical period through the Renaissance; Semester II: Spinoza to the present.

40. Mythology (3)

Major myths of the Western world in ancient and modern versions.

42. French Civilization (3) I

The major currents and characteristics of French culture, as expressed through the centuries in literature, art, and philosophy.

43. French Civilization (3) II

Continuation of Humanities 42.

44. German Civilization (3) I

Not open to majors or minors in German.

The major currents and characteristics of German culture, as expressed through the centuries in literature, art, and philosophy.

45. German Civilization (3) II

Not open to majors or minors in German.

Continuation of Humanities 44.

48-5. European Civilization (3) S

The civilization of Europe through a conducted travel tour.

52. Russian Civilization (3) I

Same course as Russian 40.

The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy, and music.

53. Russian Civilization (3) II

Same course as Russian 41.

Continuation of Humanities 52.

54. Italian Civilization (3) I

Same course as Italian 40.

The major aspects of Italian civilization with particular emphasis upon literature, art, philosophy, music, and history.

55. Italian Civilization (3) II

Same course as Italian 41.

Continuation of Humanities 54.

58. African Culture and Civilization (3) II

An interdisciplinary survey.

59A-59B. The Asian Heritage (3-3)

An interdisciplinary year course on the cultures of Southern, Southeastern, and Eastern Asia, with emphasis on the interaction of ideas, peoples and their environment.

66A-66B. Honors Colloquium (3-3)

Prerequisite: Sophomore standing and admission to the special advising program. Interdisciplinary conference, with readings, discussion, reports.

138. Introduction to Aesthetic Appreciation (1) I

Same course as Comparative Literature 138.

Major forms of expressions and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

142. French Civilization (3) I

French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

143. French Civilization (3) II

Continuation of Humanities 142.

148-S. European Civilization (3) S

The civilization of Europe through a conducted travel tour.

150A-150B. The Cultural Heritage of Europe I (3-3) I

European history, literature, philosophy, art, and music from the Middle Ages to the French Revolution, stressing major cultural movements: Romanesque, Gothic, Renaissance, Baroque, Rococo, and Classicism.

151A-151B. The Cultural Heritage of Europe II (3-3) II

European history, literature, philosophy, art, and music during the 19th and 20th centuries, stressing major cultural movements: Romanticism, Realism, Naturalism, Symbolism, Expressionism, Existentialism, and Structuralism.

152. Russian Civilization (3) I

Same course as Russian 140.

Russian culture of the past and present, with emphasis on the arts, philosophy, literature, and music.

153. Russian Civilization (3) II

Same course as Russian 141.

Continuation of Humanities 152.

154. Italian Civilization (3) I

Same course as Italian 140.

The major aspects of Italian civilization with particular emphasis on literature, art, philosophy, music, and history.

155. Italian Civilization (3) II

Same course as Italian 141.

Continuation of Humanities 154.

160. The Quest for European Unity (3)

Prerequisite: A year course in Western Civilization.

The movement for European unity: background, manifestations, and obstacles.

170. The Humanities and Modern Man (1) Irregular

Lectures open to the public. May be repeated for a total of three units.

Weekly lectures on literature, language, philosophy, and cultural history. Reading and reports required of students enrolled for credit.

180. Study of American Culture (3) I, II S

American Studies as a discipline, the critical methods of the field, the variety of materials for interdisciplinary study.

190. Symposium on European Studies (1) S

A series of lectures and discussions on various aspects of current European developments with particular emphasis on efforts toward European coordination, cooperation, and integration. May be repeated with new content. Maximum credit three units.

198. Integration in the Humanities (3) I, II

The investigation of topics common to two or more departments, with oral and written reports. Required of all senior majors in divisional programs in humanities, and open to seniors with majors in English, foreign languages, history, and philosophy.

Industrial Arts

In the College of Professional Studies

Faculty

Emeritus: Ford, Luce

Professors: Anderson, W., Irgang, McLoney (Chairman), McMullen, J. D., Thiel

Associate Professors: Aguirre, Bailey, G., Hammer, Simons

Assistant Professors: Blackmun, Dirksen, Fukamizu, Guentzler, Lybarger, Marsters, McEowen

Lecturer: Ferree

Offered by the Department

Master of Arts degree in industrial arts.

Major in industrial arts with the A.B. degree in applied arts and sciences.

Minor in industrial arts.

Teaching major in industrial arts with specialization in secondary teaching.

Teaching minor in industrial arts with specialization in both elementary and secondary teaching.

Major

With the A.B. Degree in Applied Arts and Sciences

Preparation for the major. Industrial Arts 11, to be taken at the beginning of the major; five courses selected from Industrial Arts 10, 15, 21, 31, 40, 51, 61, 71, and 81 (17 units).

Major. A minimum of 24 upper division units to include nine units in **each of two** of the following fields: industrial drawing, general metalworking, plastics, general woodworking, electricity-electronics, transportation, graphic arts, industrial crafts, and photography.

Minor

The minor consists of 20 units in industrial arts to include Industrial Arts 11, 21, and one lower division and one upper division course in each of two of the following fields: general woodworking, electricity-electronics, transportation, industrial crafts, industrial drawing, photography, plastics, and graphic arts. Choose electives in consultation with the adviser.

Major for the Standard Teaching Credential

For specialization in secondary teaching, the student must fulfill the requirements for the A.B. degree in applied arts and sciences and, in his postgraduate year, complete two of the following courses, selected in the same two areas used for the undergraduate major: Industrial Arts 201, 202, 203, 204, 205, 206, 207, 208, 215.

Minor for the Standard Teaching Credential

The minor in industrial arts for the standard teaching credential, with specialization in either elementary or secondary teaching, consists of 26 units to include Industrial Arts 11 and nine units selected from the following lower division courses: Industrial Arts 10, 15, 21, 31, 40, 51, 61, 71, and 81; and in the upper division, twelve units from the following two-course sequences: Industrial Arts 101 and 102, 111 and 112, 115 and 116, 121 and 123, 131 and 133, 140 and 142, 151 and 153, 161 and 163, 171 and 173, 181 and 183.

5. General Industrial Arts Laboratory (3) I, II

One lecture and six hours of laboratory.

Open to all students. A general education elective course.

Practical utilization of tools and materials with emphasis on drafting, metalworking, and woodworking. Individual projects, field trips, and audio-visual materials.

6. Survey of Electronics (3) I, II

One lecture and six hours of laboratory.

A non-mathematical survey of electronics, practical utilization of tools and equipment of today's industry.

10. General Crafts (3) I, II

One lecture and six hours of laboratory.

The practical utilization of tools, materials, and methods employed in industrial craft areas. The fundamentals of good design.

11. Orientation to Industrial Arts (2) I, II

Required of all industrial arts majors during their first semester.

The history and philosophy of industrial arts with emphasis on the current status and development of the secondary school curriculum. Discussion of professional requirements, obligations, and development.

15. General Plastics (3) I, II, S

One lecture and six hours of laboratory.

Production methods, mechanical and physical properties, composition of plastics. The basic processes: molding, casting, thermoforming, reinforcing, and foaming.

21. Industrial Drawing (3) I, II

One lecture and six hours of laboratory.

Fundamental theories, procedures, and techniques of modern industrial drafting; study and practice intended to develop skill and judgment in application to drafting as the universal language of industry.

31. General Metalworking (3) I, II

One lecture and six hours of laboratory.

Exploration of basic materials and methods employed by industry to produce metal products. The attainment of knowledge and skills involved in the primary fabrication techniques of sheet metal, bench metal, art metal, foundry, forging, machine, and welding.

40. Introduction to Photography (3) I, II

(Same course as Telecommunications and Film 20)

One lecture and six hours of laboratory.

A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. Not open to students with credit in Journalism 50. (Formerly numbered Industrial Arts 85.)

51. General Woodworking (3) I, II

One lecture and six hours of laboratory.

Theories, practices, and basic problems of working in wood; safety practices. The use of hand tools, the science of working with wood, and the techniques of student personnel management.

61. Basic Electronics (3) I, II

One lecture and six hours of laboratory.

Planning, designing, constructing, and experimenting to develop skills and acquire knowledge in the electronics field. Basic principles, their application to modern electronic equipment, and correct use of common hand tools and simple test equipment.

71. General Transportation (3) I, II

One lecture and six hours of laboratory.

The design, theory of operation, and repair procedures of various types of transportation equipment. Development of basic skills in the maintenance of equipment for land, sea, and air transportation.

81. General Graphic Arts (3) I, II

One lecture and six hours of laboratory.

The theory and practice in planning, designing, and processing in the various graphic reproduction activities involving type, stencils, paper, and other allied materials.

101. Industrial Arts Crafts (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Previous industrial arts experience.

Emphasis on skills in the industrial arts crafts by laboratory experiences in such areas as plastics, jewelry, lapidary, leather, and mosaics. Stress on creativity in design and in utilization of materials.

102. Advanced Industrial Arts Crafts (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 101.

Advanced techniques of industrial arts crafts. Development of audio-visual aids, projects, and resource materials with emphasis on physical setting, organization, and other pertinent laboratory problems.

103. Advanced Industrial Crafts (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 102.

Advanced techniques of industrial crafts. Concentration on the design of craft projects with best utilization of materials. Development, in at least three areas specified by the instructor, of individual exhibits showing originality.

105. Workshop in Instructional Materials (3) S

One lecture and six hours of laboratory.

Industrial arts laboratory experiences adapted to the individual needs of experienced elementary and secondary school teachers; practice in use of tools common to problematic needs. Preparation of materials and instructional aids for classroom use. Not open to industrial arts majors.

111. Comprehensive Industrial Arts (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Previous industrial arts experience.

Principles, techniques, and procedures effective in meeting problems involved in a multiple activity program. Individual opportunity to explore each area of the selected industrial arts activities, utilizing a variety of tools, equipment, and materials.

112. Organization of Comprehensive Industrial Arts (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 111.

Planning a multiple activities program; selection and organization of subject matter. Individual opportunity to develop skills and to cooperate in mass production studies.

115. Industrial Arts Plastics (3) I, II, S

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 15.

Production of plastic products. Design and use of basic tooling: dies for injection and compression molds, forms for lamination and reinforcement, and molds for thermoforming.

116. Intermediate Industrial Arts Plastics (3) I, II, S

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 115.

Techniques of tooling production and plastics processing; physical and mechanical properties of various plastics; selection of plastic materials.

117. Advanced Industrial Arts Plastics (3) I, II, S

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 116.

Composition of basic plastics and its relationship to processes; the structure of plastic resins, catalysis, and the effects of environment.

121. Intermediate Industrial Drawing (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 21.

Complex theories and techniques of graphic delineation. Activities selected to develop individual competence.

122. Advanced Industrial Drawing (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 21.

Architectural drafting, primarily in small home planning. Development of drafting skills and understanding of good contemporary home design.

123. Industrial Arts Drawing (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Industrial Arts 21.

Practice in and analysis of modern industrial drafting techniques and theories.

131. Intermediate Metalworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 31.

Advanced study of metal fabrication with emphasis on the theory and operation of metalworking machines. Laboratory activities on a selective basis to provide for the development of individual competence.

132. Advanced Metalworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 131.

Manufacturing processes, including material selection, production procedures, methods of assembly, and finishing. Emphasis on selection, distribution, and utilization of metal products.

133. Industrial Arts Metalworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 131.

Theory and practice in organization and management of industrial arts metalworking facilities, including material procurement, equipment selection, and maintenance.

140. Photography for Teachers (3) I, II

One lecture and six hours of laboratory.

Designed for more mature students to learn photographic skills useful in teaching. (Formerly numbered Industrial Arts 185.)

141. Intermediate Photography (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Industrial Arts 40 or 140.

Exposure theory, sensitometry, contrast control, specialized development, distortion and perspective control, and advanced studies of photographic lenses and equipment.

142. Advanced Photography (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 85.

A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques. (Formerly numbered Industrial Arts 186.)

143. Advanced Problems in Photography (3)

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 141.

Technical problems and techniques in photography.

144. Color Photography (3)

Two lectures and three hours of laboratory.

Prerequisite: Industrial Arts 141.

Exposure and processing techniques as applied to current color films and papers in relation to the theory of color photography.

151. Intermediate Woodworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 51.

Experience in the use of selected woodworking machines which offer opportunities for the development of construction activities in wood. Emphasis on creative design, sound safety practices, and techniques of personnel management.

152. Advanced Woodworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 151.

Designed to increase professional skills, craftsmanship, advanced technical skills, and equipment maintenance procedures.

153. Industrial Arts Woodworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 152.

Industrial arts woodworking resources and materials; experience in industrial arts planning, laboratory and equipment organization, and personnel management.

161. Intermediate Electronics (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 61.

Development of skills through planning, designing, constructing, and experimenting. Emphasis on the application of advanced principles of electronics to the uses of power, transmission, communication, radio and television.

162. Advanced Electronics (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 161.

Development of advanced skills with application to industrial electronics. Techniques in the use of electronics test equipment and analysis of electronic devices.

163. Industrial Electronics (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 162.

Advanced problems in industrial electronics circuit development, analysis, theory, and application.

164. Basic Digital Computers (3)

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 162.

Functions of circuitry as applied to switching, timing and pulse circuits. Basics of computer digital logic.

165. Analog Computer Fundamentals (3)

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 162.

Introduction to electronic analog circuits, with emphasis on instrumentation and measurement techniques.

171. Intermediate Transportation (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 71.

Advanced study of the operating principles and maintenance procedures of selected types of transportation equipment. Emphasis on automotive engines, electrical systems, and automatic transmissions.

172. Advanced Transportation (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 71.

Theory and use of various types of diagnostic test equipment. Emphasis on automotive power accessories.

173. Industrial Arts Transportation (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 171.

Advanced techniques in testing and analysis of power units common to transportation and industry. Emphasis on organization and administration of industrial arts transportation facilities.

181. Intermediate Graphic Arts (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 81.

Activities in the various graphic arts with emphasis on new technology in the industry.

182. Advanced Graphic Arts (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 181.

Planning of activities and perfecting of skills in printing and publication; efficient operation of machines and equipment.

183. Industrial Arts Graphic Arts (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 181.

Advanced techniques in developing skills involved in graphic arts facilities.

190. Experimental Industrial Arts (1 or 2) I, II

Prerequisite: Consent of instructor.

Individual laboratory work on complex projects on an experimental basis. May be repeated with consent of instructor.

193. Industrial Arts Organization and Management (2) I, II

Two lectures.

The organization of industrial arts in secondary schools, review of project requirements and methods of developing student participation in personnel management.

194. Recent Trends in Industrial Arts Education (2) I, II

Two lectures.

Current trends and practices in the field of industrial arts in secondary education. There will be opportunity for individual work on related problems of interest to members of the class.

198. Senior Project (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Consent of instructor.

Each student will work on a project in a selected industrial arts activity area. Oral progress reports will be made and a final written report is required.

200. Seminar (3)**201. Advanced Teaching Problems (3)****202. Industrial Arts Problems in Graphics and Design (3)****203. Industrial Arts Problems in Metalworking (3)****204. Problems in Photography (3)****205. Industrial Arts Problems in Woodworking (3)****206. Problems in Electronics (3)****207. Industrial Arts Problems in Transportation (3)****208. Industrial Arts Problems in Graphic Arts (3)****215. Problems in Plastics (3)****220. History and Philosophy of Industrial Education (3)****221. Curriculum Construction in Industrial Arts Education (3)****222. Instructional Resources for Industrial Arts Education (3)****223. Evaluation in Industrial Arts Education (3)****224. Organization, Administration and Supervision of Industrial Education Programs (3)****267. Field Work in Industrial Arts (3)****290. Research Procedures in Industrial Arts (3)****295. Selected Topics in Industrial Arts (3)****298. Special Study (1-3)****299. Thesis (3)**

Italian

See French and Italian.

Japanese

See Classical and Oriental Languages.

Journalism

In the College of Professional Studies

Faculty

Professors: Julian, Wimer

Associate Professors: Buckalew, Holowach, Odendahl (Chairman), Sorensen

Assistant Professors: Haberstroh, Spevak, Whitney, F.

Offered by the Department

Major in journalism with the A.B. degree in liberal arts and sciences.

Teaching major in journalism with specialization in secondary teaching.

Minor in journalism.

Teaching minor in journalism with specialization in secondary teaching.

Major

With the A.B. Degree in Liberal Arts and Sciences

A minor is not required with this major; however, several minors are available to increase the scope of training for careers in journalism. Available are those in business administration for students interested in advertising or newspaper management and in radio-television (offered by Telecommunications and Film). Students planning to enter public relations should work out with their advisers a pattern of courses from other departments to supplement requirements for a major in journalism.

Preparation for the major. Journalism 50, 51A, and 51B (9 units).

Major. Twenty-four upper division units in journalism to include Journalism 102, 117, 121, and 104 or 151, and one year's enrollment in 124, 125, or 192.

Minor

The minor in journalism consists of 15 units in journalism, nine of which must be upper division.

Major for the Standard Teaching Credential

For specialization in secondary teaching, the requirements are as follows:

Preparation for the major. Journalism 50, 51A, and 51B. (9 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in journalism to include Journalism 102, 117, 121, and 151 or 104, and one year's enrollment in 124, 125, 192 or 193.

Postgraduate Year. Six upper division or graduate units in journalism.

Minor for the Standard Teaching Credential

The minor in journalism for secondary teaching consists of not less than 20 units to include in the lower division, Journalism 51A, 51B; and in the upper division, Journalism 102, 151 and 192. Additional journalism electives must be taken to complete the minimum of 20 units. Among the electives recommended but not required, are Journalism 49, 152, and 193. Students selecting this minor must have an academic major.

49. Introduction to Mass Communications (3) I, II

The work of mass media, their interrelationships, and the services they perform for society; common problems and responsibilities of the mass media; training and background needed in different media.

50. News and Feature Photography (3) I, II

Two lectures and three hours of laboratory.

An elementary course designed primarily for students of journalism and public relations; experience with professional photographic equipment and film processing; contact and projection printing; emphasis on composition and news value of pictures. Not open to students with credit in Industrial Arts 85.

51A. News Reporting (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Sophomore standing and ability to type.

Study of reporting techniques, with intensive laboratory practice in gathering, evaluating, and writing the basic types of news stories.

51B. Advanced News Reporting (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Grade of C or better in Journalism 51A.

Intensive laboratory practice in writing the more complex types of news stories. Work includes some reporting for the campus newspaper, *The Daily Aztec*.

92. Newspaper Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units. A maximum of three units of Journalism 92, or its equivalent, may be counted in the total required for graduation.

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec*.

93. Yearbook and Magazine Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

101. Magazine Article Writing (3) II

Gathering material and writing articles for specialized areas, with emphasis on the business press. Production of eight articles and marketing of at least one article required.

102. Law of Mass Communications (3) I, II

Libel, defamation, privacy, censorship, advertising laws, postal regulations, and constitutional guaranties affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

103. Magazine Editing (3) II

Mechanics of the editorial process in magazines, with emphasis on industrial and business publications; selection and preparation of editorial material; picture selection, cropping, captioning; graphic production processes; layout; preparation of dummies; special purpose booklets and magazines.

104. Radio and Television News (3) I, II

(Same course as Telecommunications and Film 112)

Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures, and kinescopes; filming, editing, and scripting news on motion pictures; using recorders to report special events.

105. Editorial Writing (3) I

Principles and policies of editorial composition for mass communications media.

107. Technical Writing (3) II

Reporting technical developments in nontechnical language. Techniques of writing and editing primarily for nonmajors in journalism.

117. History of Mass Communications (3) I

American journalism from colonial times to the present, with special attention to radio and other mass media which have entered the news and entertainment field; the relation of their development to society.

118. The Foreign Press (3) I

The four theories of the press. Flow of international news. Analysis of the foreign media. Problems of propaganda, governmental control, language, and economic support.

121. Current Problems in Mass Communications (3) I, II

Forces affecting American mass communications today: Government restrictions, economics, pressure groups, censorship, mechanical developments, interrelationships of the media and society; professional ethics.

122. Public Opinion Measurement (3) I

(Same course as Psychology 122)

The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

124. Radio News Production (3) I, II

Prerequisite: Journalism 104 or Speech Arts 187.

Radio news production with experience in writing, editing national wire copy and local copy, preparing tapes and on-the-spot recordings of news events for programs produced over the campus radio station and local commercial radio stations. May be repeated to a maximum of six units.

125. Television News Production (3) I, II

Prerequisite: Journalism 104 or Speech Arts 187.

Television news production with experience in photographing news events, processing and editing film, and writing copy to film for programs produced over the campus and local commercial television stations. May be repeated to a maximum of six units.

144. Reporting of Public Affairs (3) II

Prerequisites: Journalism 51A and 51B.

Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers.

150. Advanced News and Feature Photography (3) II

Two lectures and three hours of laboratory.

Prerequisite: Journalism 50.

Techniques for achieving the technical and story-telling quality in photojournalism.

151. News Editing (3) I

Three lectures and two hours of laboratory.

Prerequisites: Journalism 51A and 51B.

Editing copy, writing headlines, making up pages, handling telegraph copy.

152. High School Journalism (3) II

Methods of conducting high school journalism classes. Editorial, business and mechanical aspects of school publication work, with emphasis on copy editing, headline writing and layout. Not open to journalism majors.

153. Newspaper Advertising (3) I

Principles of advertising for newspapers and trade papers. Emphasis on copy-writing, layout, typography, and production. Use of consumer and market surveys, and advertising readership studies in planning local advertisers' sales problems and promotions.

154. Newspaper Advertising Practice (1-3) I, II

Prerequisite: Journalism 153.

Practical work in servicing accounts in advertising on campus media. Supervised work in preparation of copy and layout. Copy-testing methods emphasized. Maximum credit six units.

155. Advanced Editing Techniques (3) I

Prerequisite: Journalism 151.

Principles of typography, page layouts, and use of pictorial material; selection evaluation, editing, and display of news.

156. Advertising Campaigns (3) I

Prerequisite: Journalism 153 or Telecommunications and Film 103.

Cases and problems dealing with advertising campaigns and decision-making involving copy themes, artwork, and media imagery.

157. Advertising Copy, Layout, and Production (3) I, II

Prerequisite: credit or concurrent enrollment in Journalism 153.

Preparation of copy, layout planning, and production of advertising.

159. Advertising Research and Analysis (3) II

Prerequisite: Journalism 153.

Evaluation and use of data collecting and measurement for print media advertising. Cases and problems, with emphasis on quantitative and qualitative characteristics of print advertising.

162. Mass Communication and Society (3) I, II

Prerequisite: Sociology 1 or 102.

Social factors underlying nature, functions of mass media. Theories, models, research in media as culture carriers, as opinion shapers, and in relation to government.

177. Research Methods in Mass Communications (3) II

Prerequisite: Sociology 60.

Investigate tools and methods of mass media; content analysis, readership studies, audience measurement, experimental designs, and representative studies.

179. Public Relations Techniques and Media Usage in Elections (3) II

Use of public relations techniques in political campaigns of all sorts with emphasis on media usage.

180. Public Relations (3) I, II

Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems.

182. Publications Workshop (3) S

Individual problems in high school publication problems. May be repeated for a maximum of six units.

183. Problems in Public Relations (3) II

Prerequisite: Journalism 180.

Current public relations problems of industry, public agencies, and other institutions.

184. Public Relations Practices (3) I

Prerequisite: Journalism 180.

Examination of current public relations practices in a wide variety of local commercial, industrial, financial, governmental, cultural, and social organizations. Use of the local community's public relations resources.

191. Internship in Journalism (1-3) I, II

Prerequisites: Journalism 51A, 51B, and consent of instructor.

Prearranged and supervised work on local magazines, city and county newspapers, radio and television stations, and on public relations, publicity, and advertising staffs of civic and business groups. May be repeated to a maximum of six units with no more than three units in any one semester.

192. Newspaper Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec*.

193. Yearbook and Magazine Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

194. Editorial Conferences (1-3) I, II

More than three hours a week per unit of credit.

Prerequisites: Journalism 192 or 193, and consent of publication adviser.

Techniques for solving problems in publication production through individual daily conferences with faculty adviser. Open only to editorial executives of *The Daily Aztec* and *Del Sudoeste*. Maximum credit six units.

197. Investigation and Report (3) I, II

Development of articles of substance and depth in specialized fields. Research, analysis, and interpretation of complex issues in the news. May be repeated to a maximum of six units.

200. Scope and Method of Mass Communications (3) I**202. Seminar: Mass Media and the Law (3) I****217. Seminar: History of Journalism (3) II****218. Seminar in International Journalism (3)****221. Seminar: Media Problems (3) I****222. Mass Communications and Public Opinion (3) II****240. Major Projects in Mass Communications (1-6) I, II****262. Seminar: Mass Communications and Society (3) II****283. Seminar in Public Relations (3)****298. Special Study (1-3) I, II****299. Thesis (3) I, II**

Latin

See Classical and Oriental Languages.

Library Science

See "School of Education" in the catalog section Professional Schools:
Courses and Curricula.

Mathematics

In the College of Sciences

Faculty

Emeritus: Clark, Emerson

Professors: Becker, G., Branstetter, Burton, Deaton, Drobnies, Eagle, Fountain, Garrison, B., Gindler, Harris, V., Harvey, A., Hasse, Holmes (Chairman), Lemme, Moser, Riggs, Saltz, Shaw, P., Smith, N., Van De Wetering, Warren, L., Willerding

Associate Professors: Bray, Bryant, Davis, R. W., Ho, Howard, E., Lopez, Macky, Nower, Romano, Smith, J. B.

Assistant Professors: Beverage, Burdick, Eckberg, Elwin, Hager, Hintzman, Kaskowitz, Khazanie, Kopp, R., Lesley, Marcus, Marosz, Mortensen, Prichett, Ross, J., Self, Short, Villone, Whitman

Lecturer: Bacon

Offered by the Department

Master of Arts in mathematics.

Master of Science in mathematics.

Master of Science in statistics.

Master of Arts for teaching service with a concentration in mathematics.

Major in mathematics with the A.B. degree in liberal arts and sciences.

Major in mathematics with the A.B. degree in applied arts and sciences.

Minor in mathematics.

Teaching major in mathematics with specialization in both elementary and secondary teaching.

Teaching minor in mathematics with specialization in both elementary and secondary teaching.

Major

With the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. Mathematics 50, 51, and 52 (13–16 units). Recommended: Physics 4A–4B–4C.

Major. A minimum of 24 upper division units which should be approved by the adviser before starting upper division work. This must include Mathematics 121A and 150A, and may include six units of approved related area courses.

Major

With the A.B. Degree in Applied Arts and Sciences

Preparation for the major. Mathematics 50, 51, and 52 (13–16 units). Recommended: Physics 4A–4B–4C.

Major. A minimum of 24 upper division units which should be approved by the adviser before starting upper division work. This must include Mathematics 121A and 150A, and may include six units of approved related area courses.

Minor

The minor in mathematics consists of at least 21 units in mathematics to include in the lower division, Mathematics 50 and 51 or Mathematics 21, 22, and 23, and in the upper division, nine units in mathematics with not more than three units selected from Mathematics 101, 104, 110A, 110B, 130A.

Major for the Standard Teaching Credential

Specialization in Elementary Teaching

Preparation for the Major. Mathematics 21, 22, and 60; or 51 and 52 (8-9 units).

Teaching Major. Twenty-four upper division units in mathematics to include Mathematics 150A or 152. The remaining units must be approved by the departmental adviser and may include six units in courses from a related area.

Specialization in Secondary Teaching

Preparation for the major. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-16 units.) Recommended: Physics 4A-4B-4C.

Teaching Major (Undergraduate). A minimum of 24 upper division units in mathematics to include Mathematics 101, 104, 150A, a geometry course and a statistics course. Mathematics 121A is recommended.

Postgraduate Year. Six upper division or graduate units acceptable toward the credential, to be selected with approval of the departmental adviser.

Minor for the Standard Teaching Credential

Specialization in Elementary Teaching

The minor in mathematics for elementary teaching consists of not less than 20 units in mathematics, six units of which must be in upper division courses.

Specialization in Secondary Teaching

The minor in mathematics for secondary teaching consists of not less than 21 units, exclusive of course equivalents to include in the lower division, Mathematics 40, or qualifying by examination, Mathematics 50 and 51; one course in related areas selected from Astronomy 1, Engineering 20A, Physics 4A or 2A or 1A; and in the upper division, nine units (12 units if major is a non-academic major) in mathematics to include Mathematics 104 and six units of mathematics electives.

Mathematics Placement Examinations

All students who expect to enroll in Mathematics 3, 4, 12, 20, 21, 40, or 50 and have not completed prerequisite courses at San Diego State College must take the mathematics placement tests. Students in elementary education who expect to enroll in Mathematics 10A, 10B, or 110A and have not completed prerequisite courses at San Diego State must take the Mathematics Education Placement Test. These tests may be used to satisfy all or part of the prerequisite requirements for these courses and they also serve as a basis for the selection of students for the mathematics honors program. The schedule for these examinations will be posted on the mathematics bulletin board. Provision is also made for these examinations to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

3. Intermediate Algebra (3) I, II

Prerequisite: One year of elementary algebra.

Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions. Not open to students with credit in Mathematics 20 or higher-numbered courses.

4. Trigonometry (2) I, II

Prerequisites: Credit in plane geometry in either high school or college combined with either credit in Mathematics 3 at this college or qualification on Mathematics Placement Examination. Mathematics 4 may be taken concurrently with either Mathematics 40 or 50.

Basic concepts of analytic trigonometry.

7. Introduction to Computer Programming (2) I, II

One lecture and three hours of laboratory.

Prerequisite: Mathematics 3.

The use of a problem-oriented language and peripheral equipment. Machine organization. Extensive programming of problems on the computer.

8. Theory and Use of the Slide Rule (1)

Practice in performing the fundamental operations of the slide rule.

10A-10B. Structure and Concepts of Elementary Mathematics (3) I, II

Open only to students working toward a teaching credential in elementary education.

Prerequisites: High school algebra and geometry. Mathematics 10A or qualification on a Mathematics Education Placement Test is prerequisite to 10B.

Numbers used in elementary mathematics, elementary number theory and congruences, extension of the number system to irrational numbers, nonmetric and metric geometry, and an introduction to logic.

12. Elementary Statistics (3) I, II

Two lectures and two hours of laboratory.

Prerequisite: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Tabular and graphical presentation, measures of central tendency and variability, analysis of times series, linear correlation coefficient. Applications from the fields of biology, economics, education, engineering and psychology. Not open to students with credit for, or concurrent enrollment in another statistics course.

18. Introduction to Mathematics (3) I, II

Prerequisites: Two years of high school mathematics.

Topics from logic, modern algebra, and analysis designed to give the student an introduction to the structure of mathematical theories and their applications.

20. Mathematics for Business Analysis (3) I, II

Prerequisite: Mathematics 3 at this college or qualification on Mathematics Placement Examination.

Basic mathematics for business students, including topics from finite mathematics and calculus.

21. Mathematical Analysis (3) I, II

Prerequisites: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Concepts and applications of algebra, analytic geometry and the polynomial calculus, with emphasis on graphical methods. Designed for students who do not intend to prepare for a professional career in one of the physical sciences or in engineering. Not open to students with credit in Mathematics 50.

22. Mathematical Analysis (3) I, II

Prerequisite: Mathematics 21.

A continuation of Mathematics 21 including concepts of trigonometry and the calculus of elementary transcendental functions. Not open to students with credit in Mathematics 51.

23. Mathematical Analysis (3)

Prerequisite: Mathematics 22.

Infinite series, partial differentiation, multiple integrals. For the non-major. (Not open to students with credit in Mathematics 52.)

37. Intermediate Computer Programming (3) I, II

Prerequisite: Mathematics 7.

Further use of problem-oriented language. Machine organization. Introduction to general concepts of machine and machine-oriented language. Additional topics.

40. College Algebra (3) I, II

Prerequisite: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Functional notation, mathematical induction, complex numbers, De Moivre's theorem, inequalities, binomial theorem, determinants, etc. Not open to students with credit in Mathematics 50.

49. Introductory Matrix Algebra (3)

Prerequisite: Math 40.

Matrices, vectors, linear dependence and independence, basis, change of basis, similarity and congruence. Applications to systems of equations, characteristic values and orthogonality.

50. Analytic Geometry and Calculus (5) I, II

Prerequisites: Mathematics 40 at this college with grade of C or better, and credit or concurrent registration in Mathematics 4; or qualification on Mathematics Placement Examination.

Topics in analytic geometry, differentiation and integration of algebraic functions.

51. Differential and Integral Calculus (4) I, II

Prerequisite: Mathematics 50 with grade of C or better.

Differentiation and integration of the elementary transcendental functions; applications.

52. Differential and Integral Calculus (4) I, II

Prerequisite: Mathematics 51 with grade of C or better.

Infinite series, partial differentiation, differential equations, multiple integrals, applications.

60. Introduction to Modern Mathematical Concepts (3) II

Prerequisite: Mathematics 40 or 21.

Elementary approach to selected topics from mathematical logic, set theory, probability, matrices, linear programming and theory of games.

100. Mathematical Topics for School Teachers (2 or 3)

Offered only in Extension to currently employed elementary and secondary school teachers.

A study of selected portions of elementary or secondary school mathematics. May be repeated with new subject matter for additional credit. May not be used in a mathematics major or minor.

101. Mathematical Concepts for Secondary School Teachers (3) I, II

Prerequisite: Mathematics 50.

An examination of the concepts of secondary school mathematics from the teacher's point of view.

104. History of Mathematics (3) I, II

Prerequisite: Mathematics 21 or 40.

History of mathematics down to early modern times.

105. Introduction to the Foundations of Geometry (3) II

Prerequisite: Mathematics 51 or 22.

The foundations of Euclidean and hyperbolic geometries. Highly recommended for all prospective teachers of high school geometry.

106. Projective Geometry (3) I

Prerequisites: Mathematics 51 or 22 and consent of instructor.

Concurrence of lines, collinearity of points and other properties of figures not altered by projections; construction and study of ellipses, hyperbolas, and parabolas by means of projections.

107. Non-Euclidean Geometry (3)

Prerequisite: Mathematics 22 or 51.

History of attempts to prove the fifth postulate; emphasis on plane synthetic hyperbolic geometry; brief treatment of other types of non-Euclidean geometry.

108. Differential Geometry (3)

Prerequisite: Mathematics 52.

Curves in space, Frenet formulas, curves on surfaces, geodesics, lines of curvature, asymptotic lines, Gaussian curvature.

110A-110B. Modern Elementary Mathematics (3-3)

Prerequisite: Mathematics 10B or qualification on a Mathematics Education Placement Test. Mathematics 110A is prerequisite to 110B.

Integers, rationals, and real numbers as mathematical systems; operations, mappings, properties of relations; coordinate geometry; mensuration. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

118A-118B. Methods of Applied Mathematics (3) I, II

Prerequisites: Mathematics 52. 118A is prerequisite to 118B.

Selected topics from ordinary differential equations, with applications; hyperbolic, elliptic, Bessel and gamma functions, Fourier series and integrals, electromechanical analogies, the Laplace transform, and partial differential equations.

119. Differential Equations (3) I, II

Prerequisite: Mathematics 52.

Ordinary differential equations with applications to geometry, physics, and chemistry.

121A. Advanced Calculus I (3)

Prerequisite: Mathematics 52.

The real number system, limits and other topics, with emphasis on functions of one variable.

121B. Advanced Calculus II (3)

Prerequisite: Mathematics 121A.

A continuation of Mathematics 121A with emphasis on functions of two or more variables.

124. Vector Analysis (3)

Prerequisite: Mathematics 52.

Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics.

130A. Statistical Methods (3) I

Two lectures and two hours of laboratory.

Prerequisite: Mathematics 12 or equivalent statistics course.

F, t, Chi-square tests, analysis of variance, confidence intervals, correlation and regression analysis of covariance.

130B. Statistical Methods (3) II

Two lectures and two hours of laboratory.

Prerequisite: Mathematics 130A.

Sequential analysis, sensitivity experiments, design of experiments, nonparametric and distribution-free statistics.

134. Probability (3)

Prerequisite: Mathematics 51.

Definitions, computation of probability by enumeration of the cases, discrete and continuous random variables, density functions, moments, limit theorems, selected distributions.

135A. Numerical Analysis and Computation (3) I

Prerequisite: Mathematics 7 and 52.

Newton, Lagrange and Chebyshev approximation of functions. Inverse interpolation, numerical evaluation of roots and definite integrals.

135B. Numerical Analysis and Computation (3) II

Prerequisites: Mathematics 119 or 118A and 135A.

Solution of systems of linear equations. Application of numerical methods to the solution of partial differential equations and of integral equations.

136. Data Structures (3)

Prerequisite: Mathematics 37.

Basic concepts of data. Linear lists, strings, arrays, and orthogonal lists. Representation of trees and graphs. Multilinked structures.

137. Combinatorial Principles for Digital Computers (3)

Prerequisite: Mathematics 23 or 52.

Boolean algebra, logical design, and applied combinatorial analysis.

139. Programming Languages (3)

Prerequisite: Mathematics 37.

Formal definition of programming languages including specification of syntax and semantics. Structure of algorithmic languages. List processing and string manipulation languages.

140A. Mathematical Statistics (3) I

Prerequisite: Mathematics 134.

Sampling distributions, law of large numbers, central limit theorem, estimation of parameters, confidence intervals, hypothesis testing, regression.

140B. Mathematical Statistics (3) II

Prerequisite: Mathematics 140A.

Theoretical discrete and continuous distributions, limiting distributions, small sample theory including student's T, Chi-square and F distributions with applications, Analysis of Variance, distribution-free statistics.

141. Statistics, Theory and Applications (3)

Prerequisite: Mathematics 140A.

Sampling and sampling distributions, confidence limits, hypothesis testing, correlation, regression, analysis of variance and covariance, nonparametric techniques.

143. Stochastic Processes (3)

Prerequisite: Mathematics 140A.

Weiner and Poisson processes, covariance stationary processes, renewal counting processes, Markov chains.

149. Linear Algebra (3) I, II

Prerequisite: Mathematics 52 or 23.

A study of linear equations, Euclidean spaces, linear transformations, matrices, determinants, and eigenvalues.

150A-150B. Modern Algebra (3) I, II

Prerequisites: Mathematics 22 and 60, or 51; 150A is a prerequisite to 150B.

Selected topics from modern algebra to include an introduction to the theory of groups, theory of equations, and finite mathematics.

152. Number Theory (3)

Prerequisites: Mathematics 22 and 60, or 51.

Selected topics from the theory of numbers to include congruences, Diophantine equations, and a study of prime numbers.

155. Mathematical Logic (3)

Prerequisite: Mathematics 51 or 60, or Philosophy 20.

The logical rules of proof governing sentential connectives and the universal and existential quantifiers with applications. Not open to students with credit in Philosophy 121.

156. Logical Foundations of Mathematics (3)

Prerequisite: Mathematics 52 or 155.

The axiomatic method. Cantor's set theory and its antinomies. Development of various viewpoints on foundations of mathematics: logicism, intuitionism, formalism.

157. Theory of Recursive Functions (3)

Prerequisite: Mathematics 150A, 152, or 155.

The recursion theorem, decision problems, reducibility results, Post's classification of effectively enumerable sets, separability, applications to logic and algebra.

158. Automata Theory (3) II

Prerequisite: Mathematics 150A.

Definition and algebraic description of finite automata. Reduced forms for sequential machines. Regular sets and expressions. Introduction to context-free languages.

160. Introduction to Topology (3)

Prerequisite: Mathematics 121A.

Topological spaces. Functions, mappings, and homeomorphisms. Connectivity, compactness. Metric spaces.

166. Honors Course (1-3) I, II

Refer to the Honors Program.

170. Partial Differential Equations (3)

Prerequisite: Mathematics 119.

A study of initial and boundary value problems using separation of variables methodology.

175. Functions of a Complex Variable (3)

Prerequisite: Mathematics 52.

Analytic functions, Cauchy-Riemann equations, theorem of Cauchy, Laurent series, calculus of residues.

196. Advanced Topics in Mathematics (1-3) I, II

Prerequisite: Consent of instructor.

Selected topics in classical and modern mathematics. May be repeated with the approval of the instructor for a total of six units.

198. Directed Readings in Mathematics Literature (1)

Prerequisite: Credit or concurrent enrollment in the upper division mathematics course in which readings are to be undertaken.

Individually directed readings in mathematics literature. May be repeated for a maximum of three units, taken each time from a different instructor.

200. Seminar (1-3)**202. Geometrical Systems (3)****203. Topics in Algebra (3)****204A-204B. Topics in Analysis (3-3)****205. Advanced Mathematical Logic (3)****212. Advanced Ordinary Differential Equations (3)****214. Advanced Partial Differential Equations (3)**

- 220A-220B. Topology (3-3)**
- 222A-222B. Functional Analysis (3-3)**
- 224A-224B. Functions of a Complex Variable (3-3)**
- 226A-226B. Functions of a Real Variable (3-3)**
- 227. Fourier Analysis (3)**
- 228. Generalized Functions (3)**
- 230. Rings and Ideals (3)**
- 231. Theory of Groups (3)**
- 232. Theory of Fields (3)**
- 233. Linear Algebra and Matrix Theory (3)**
- 240A-240B. Advanced Mathematical Statistics (3-3)**
- 241. Advanced Probability (3)**
- 242. Non-parametric Statistics (3)**
- 243. Advanced Hypothesis Testing (3)**
- 244. Multivariate Analysis (3)**
- 245. Linear Statistical Hypothesis Testing (3)**
- 246. Statistical Decision Theory and Applications (3)**
- 247. Design of Experiments (3)**
- 260A-260B. Theory of Computability (3-3)**
- 265A-265B. Formal Languages and Syntactic Analysis (3-3)**
- 268A-268B. Applications of Digital Computation (3-3)**
- 270A-270B. Advanced Numerical Analysis (3-3)**
- 297. Research (1-3)**
- 298. Special Study (1-3)**
- 299. Thesis or Project (3)**

Special Courses for National Science Foundation Institute

The following courses are open only to participants in the National Science Foundation Institute, except with consent of instructor.

54. Calculus Review (2)

Review of the fundamentals of elementary calculus.

180S. Recent Trends in Secondary School Mathematics (1)

Recent trends in high school mathematics and in application of mathematics.

181. Selected Topics of Secondary School Mathematics (3)

Selected concepts of secondary school mathematics, recommended modern presentation of these concepts; relation of these concepts to more advanced college mathematics.

183S. Modern Algebra (3)

Topics of modern algebra with emphasis on their implications for high school mathematics and with attention to aspects of algebra currently becoming more important.

185S. Modern Geometry (3)

Topics of modern geometry with emphasis on their implications for high school mathematics. Postulational systems, Euclidean and Non-Euclidean geometrics, projective geometry, topology.

187A-187B. Probability and Statistics for Secondary School Teachers (3-3)

Probability, measures of central tendency and dispersion, characteristics of frequency functions of discrete and continuous variates; applications.

Mexican-American Studies

*Administered under the Direction of the Dean of
Undergraduate Studies*

Faculty

Associate Professor: Nuñez

Assistant Professors: Garcia, Vasquez, M., Velez-I. (Director)

Instructor: Urista

Offered by Mexican-American Studies

Major in Mexican-American studies with the A.B. in liberal arts and sciences

Minor in Mexican-American studies

Major with the A.B. Degree in Liberal Arts and Sciences

A double major is strongly recommended for students majoring in Mexican-American Studies.

Students majoring in Mexican-American Studies must complete a minor in another field approved by the adviser in Mexican-American Studies.

Preparation for the major. Mexican-American Studies 1A-1B. (6 units.)

Major. A minimum of 24 upper division units to include Mexican-American Studies 100; History 182A-182B; History 183A or 183B or Comparative Literature 180; and twelve units selected from (social sciences) Mexican-American Studies 101, 102, 103, 104, 105, 111, 121, 122A-122B; or twelve units selected from (humanities) Mexican-American Studies 131, 132, 133, 134, 135, 165; or twelve units selected from (education) Mexican-American Studies 180, 181, 182, 183, 184, 185, 186. These courses are not acceptable for an education credential program.

Foreign language requirement. Students majoring in Mexican-American studies must demonstrate knowledge of Spanish by satisfactory completion of 20 units of Spanish (Spanish 1, 2, 3, 4, 10, 11, or equivalents), or by written and oral examinations administered by Mexican-American studies.

Minor

The minor consists of 15 units in Mexican-American studies, nine of which must be upper division.

1A-1B. Introduction to Mexican-American Studies (3-3)

Introduction to the culture and the civilization of the Mexican-American. Semester I: History; Mexican and U.S. roots; the new identity. Semester II: Contemporary problems; social and political movements.

2A-2B. Oral and Written Communication for the Spanish-Speaking (3-3)

Training for the Spanish-speaking in processes of oral and written expression. Semester I: Oral expression; addressing the barrio; formal delivery. Semester II: Written expression; English grammar and composition; the term paper. Mexican-American Studies 2A is equivalent to Speech Communication 3. Mexican-American Studies 2B is equivalent to English 5.

10. Mexican-American in Transition (3)

Modern Chicano social problems recognizing the sociological factors involved. Emphasis on scientific method of approach. Evaluation of various causes and solutions of problems of the Chicano. Mexican-American Studies 10 is equivalent to Sociology 10.

11. Field Instruction (3-6)

Field work in the barrio. Directed research and development projects in the San Diego Chicano community. Recommended that this course be taken concurrently with Mexican-American Studies 1A or 1B. Maximum credit six units.

20A–20B. The Mexican-American Role in the American Political System (3–3)

Semester I: Relationship between the Mexican-American community and the American political system. Semester II: The Mexican-American in relation to his city, county, and state institutions in California. This year course meets the graduation requirement in American Institutions.

30. Mexican Literature in Translation (3)

Contemporary Mexican prose and poetry in translation.

40. History and Sociology of Racism (3)

Survey and analysis of majority group racism and its effects upon minority ethnic groups and society.

41A–41B. History of the United States (3–3)

Emphasis on Spanish and Mexican influences. Semester I: U.S. expansion to 1848. Semester II: 1848 to the present. The Treaty of Guadalupe Hidalgo; history of Mexican immigration; farm labor and urban Chicano history; contemporary movements.

50. Introduction to Mexican-American Culture (3)

The individual Chicano and his cultural pattern: The acquisition of his culture, innovation and invention, direction of his cultural development, diffusion and interpenetration of Mexican and U.S. cultures.

60. Mexican-American Art (3)

Contemporary barrio art in the Southwest. Lectures and exhibitions by Chicano artists of California.

65A. History of Mexican-American Drama (3)

The teatro Campesino of Luis Valdez: The Los Angeles teatro urbano. Theory and practice in contemporary Chicano theater, including literary, critical, and technical aspects viewed against the historical background.

65B. Mexican-American Dramatic Production (3)

Two lectures and three hours of laboratory.

Theatrical practices and organization of productions; writing for the Chicano theater; presentation of plays in the barrio and the college.

65C. Mexican and Chicano Music (3)

Music of Mexico and the barrio: Emphasis on the *corrido*, its history and development in Mexico and the U.S.

100. Mexican-American Culture and Thought (3)

Intellectual history of Mexican-American from Nahua and European origins to synthesis between the two continents in nineteenth and twentieth centuries. The concept of *Raza de bronce* and *Aztlan*.

101. Community Organization and Development (3)

Theory of organizing the Mexican-American community for creative roles in educational, political, social change. Role of the professional organizer.

102. Contemporary Problems of the Barrio (3)

Sociological and practical analysis of barrio problems. Observation in informal agencies for experience and sensitizing.

103. Narcotics in the Mexican-American Community (3)

Prevention and cure of drug problems; old and new methods and formal and informal agencies explored.

104. Penology and Criminology and the Chicano (3)

The Chicano and the Pachuco and the penal institutions. Who goes to jail, and why. Field trips to penal institutions, courtrooms.

105. Mexican-American Life Styles (3)

The Mexican-American family in the past, present, and future. Traditional and evolving roles of the man and the woman. The new alternatives in the twentieth century.

111. Advanced Field Instruction (3)

Advanced field work in the barrio. Directed research and development projects in the San Diego Chicano community. Maximum credit six units.

121. Immigration Law and Practices (3)

Legal and political status of the immigrant from Mexico; process of immigration; counseling the immigrant.

122A–122B. The Chicano in Urban Politics (3–3)

Prerequisite: Mexican-American Studies 122A is prerequisite to 122B.

Semester I: Theory of urban politics; study and observation in county, city, and community organizations and agencies. Identification of specific problems. Semester II: Identification of specific urban problems; study and observation in county, city and community organizations and agencies. Exploration of practical solutions.

131. Chicano Poetry: Creative Writing (3)

Reading and writing of Spanish-English macaronic verse: A writing workshop in which students are given opportunity to criticize each other's work. Poetry is the point of departure and goal in sight. Maximum credit six units.

132. Chicano Prose: Creative Writing (3)

A writing workshop. Mutual criticism. Exploration of new form and content in Mexican-American prose. Maximum credit six units.

133. Prehispanic Literature (3)

Literature of Nahuatl and Maya areas in translation: studied as literature.

134. Language of the Barrio (3)

Pachuco, calo, and barrio Spanish: A linguistic study.

135. Mexican-American Literature (3)

Ideas, forms, history of significant Mexican-American prose, poetry and other literary genres.

165. Advanced Chicano Dramatic Production (3)

Two lectures and three hours of laboratory.

Theatrical practices and organization of productions; writing for the Chicano theater; presentation of plays in the barrio and in college.

180. The Mexican-American and the Schools (3)

The Mexican-American child's experience in the school system from pre-school through high school with emphasis on social, intellectual, and emotional growth and development.

181. Bilingual Systems (3)

New methods in bilingual education. Practical field experience in bilingual programs as classroom aids; development of bilingual materials.

182. Mexican-American Curricula

Studies of current theories in Mexican-American curricula and their development.

183. Rural and Migrant Education (3)

The Mexican-American rural and migrant student: problems and new programs.

184. Counseling the Mexican-American Student (3)

Motivational counseling at all levels; parent counseling and involvement; recruiting for secondary continuation and college.

185. Testing the Mexican-American Student (3)

Cultural bias in testing; development of new testing methods.

186. The Educational System (3)

Study and observation in county, city, and community administrative and staff offices. Identification of specific problems relating to Mexican-Americans as administrators and teachers.

197. Senior Survey in Mexican-American Studies (3)

Survey integrating studies of selected areas of Mexican-American studies. Senior report will be written.

Microbiology

In the College of Sciences

Faculty

Emeritus: Myers

Professors: Baxter, W. (Chairman), Moore, H., Walch

Associate Professors: Kelly, Phelps

Assistant Professors: Anderes, Jokela, Steenbergen

Offered by the Department

Master of Science in microbiology.

Master of Arts or Master of Science degree in biology with an emphasis in microbiology.

Major in microbiology with the A.B. degree in liberal arts and sciences.

Major in microbiology with the B.S. degree in applied arts and sciences.

Major in Environmental Health with the B.S. degree in applied arts and sciences.

Minor in microbiology.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

Microbiology Major

With the A.B. Degree in Liberal Arts and Sciences

To satisfy the graduation requirement in foreign language, it is strongly recommended that students select French, German, or Russian.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Mathematics 21 and 22, or 40 and 50; and Physics 1A-1B or 2A-2B (37-41 units.) Recommended: Chemistry 13; and Physics 3A-3B.

Major. A minimum of 24 upper division units in Microbiology and approved related fields, to include Microbiology 101, 103, 105 and 114 or Biology 155; and Chemistry 115A-115B. Remaining units to be selected from courses in microbiology, and approved courses in other biological sciences, chemistry and physics.

Microbiology Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Mathematics 21 or 40; and Physics 1A-1B or 2A-2B. (34 or 36 units.) Recommended: French or German; Chemistry 13; Mathematics 22 or 50; Physics 3A-3B.

Major. A minimum of 36 upper division units in microbiology and approved related fields to include Microbiology 101, 102 or 115, 103, 104, 105, and 107; Chemistry 115A-115B. Remaining courses to be selected from courses in microbiology, and approved courses in other biological sciences, chemistry, and physics.

Public Health Microbiologist. To fulfill the academic requirements to qualify for the licensing examination given by the California State Department of Public Health for Public Health Microbiologist, the student should follow the major in microbiology described for the B.S. degree, but should include Microbiology 102 and 109, and Zoology 128. Recommended Zoology 108 and 126.

Clinical Technologist. To fulfill the academic requirements to qualify for the licensing examination given by the State for Clinical Technologist, the student should follow the major in microbiology described for the B.S. degree, but should include Microbiology 102 and 109, and Zoology 128, and should substitute Chemistry 114A-114B for Chemistry 115A-115B. Recommended: Biology 101, 103 and 151; Microbiology 108, 111A-111B, 114 or Biology 155; and Zoology 108 and 126.

Environmental Health Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Biology 1 and 2; Chemistry 1A-1B, 4 or 5, and 11 or 12; Physics 1A-1B or 2A-2B, 3A-3B; Mathematics 21 and 22, or 40 and 50; Biology 15; Geology 2; Health Science and Safety 65; and Sociology 1. (48-54 units.)

Major. A minimum of 36 units to include Microbiology 101, 102, 111A-111B, 112, 113; Zoology 128 or Biology 150; Health Science and Safety 160; Public Administration 160; Engineering 123, 125.

Microbiology Minor

The minor consists of 15 units in microbiology to include Microbiology 101, 103 and 105.

Biological Sciences Major

For the Standard Teaching Credential

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the adviser for biological sciences teaching programs.

Postgraduate Year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

1. General Microbiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1A or 2A. Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.

A course for other than biological science majors. A study of the microorganisms of the environment, including the disease-producing organisms, their actions and reactions.

101. General Microbiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1A-1B. Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.

The actions and reactions of microorganisms in response to their environment, both natural and as changed by other organisms, including man. Also includes an introduction to the pathogens.

102. Pathogenic Bacteriology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, Chemistry 4 or 5, and 11 or 12. Recommended: Chemistry 114A or 115A.

Bacterial and rickettsial agents of disease in man and other animals. Consideration of host-parasite relationships, the biology of the inciting agents and mechanisms of host resistance. Laboratory experience in isolation and identification of bacterial pathogens.

103. Fundamentals of Immunology and Serology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, and one other advanced Microbiology course; and Chemistry 114A or 115A.

The immunochemistry of antigens and antibodies and their reactions. Immunohematology and hypersensitivity. Serological techniques.

104. Medical Mycology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, Chemistry 11 or 12. Recommended: Chemistry 114A or 115A.

Mycotic agents of disease in human and other animals. Consideration of the biology of fungi; concepts of host-parasite relationships, including factors affecting virulence and immunity. Experience in systematic identification.

105. Microbial Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101; Chemistry 4 or 5 and 11 or 12; and Physics 2A-2B. Recommended: Chemistry 114A or 115A; Physics 3A-3B.

Physiology of selected bacteria, fungi, and other microorganisms.

107. General Virology (2) I, II

Two lectures.

Prerequisite: Microbiology 102 or 115.

Viruses, their structure, function, culture, and methods of study.

108. General Virology Laboratory (2) I

Six hours of laboratory.

Prerequisites: Microbiology 102 and credit or concurrent registration in Microbiology 107.

The culture, isolation, and characterization of viruses.

109. Hematology (4) I, II

One lecture and six hours of laboratory.

Prerequisites: Microbiology 101 and Chemistry 11 or 12.

The study of normal and pathological blood with chemical, physical and microscopic methods.

110. Microbiology and Man (3) I, II

Two lectures and three hours of laboratory.

The biology of microorganisms and their significance in disease, agriculture, sanitation and industry; laboratory exercises designed to complement lecture material. Not open to majors in the biological sciences.

111A-111B. Epidemiology (2-2)

Two lectures.

Prerequisite: Microbiology 102.

Study of the transmission, distribution, and control of infectious and non-infectious diseases in the community.

112. Survey of Environmental Health (4) I

Three lectures and three hours of laboratory and field work.

Prerequisites: Biology 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Physics 2A-2B, 3A-3B; Geology 2; Health Science and Safety 65; and Microbiology 101.

General principles of environmental sanitation, including the relationship of the various aspects of physical environment to preventive medicine; the provision of clean air and water, proper waste disposal, safe food supply, and adequate habitation.

113. Environmental Health Administration (4) II

Three lectures and three hours of field work.

Prerequisites: Microbiology 102, Health Science and Safety 160, and credit or concurrent registration in Engineering 125.

Concepts of organization and administration applied to environmental health, factors affecting these at the local, national and international levels.

114. Bacterial and Viral Genetics (4) I

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, Chemistry 11 or 12. Recommended: Chemistry 114A or 115A.

The genetics of bacteriophages, selected animal viruses and bacteria.

115. Advanced General Microbiology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101; Chemistry 114B or 115B; and either Microbiology 105, Biology 101, or Botany 130.

Taxonomy, comparative physiology and ecology of representative microorganisms found in various natural environments.

116. Marine Microbiology (4) I

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 101, and Biology 110 or Microbiology 115.

Microbiological population of estuary and ocean waters; interrelationships with other organisms and the physical and chemical environment.

118. Community Epidemiology (3) I, II

Prerequisite: Microbiology 1.

A course for other than biological sciences majors. Epidemiological concepts and methods as they apply to current community problems.

120. Animal Viruses (4) II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 107. Recommended: Microbiology 103 and 108.

Animal virus identification and investigation, emphasizing cell culture, cytopathic effects, and serology.

130. Experimental Immunology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 103, Chemistry 114A or 115A.

The study of selected antigens and antibodies and their reactions.

140. History of Microbiology (2) I, II

Prerequisite: Microbiology 101.

The development of microbiology as a specialty area of the biological sciences and its influence on social and political developments.

180. Electron Microscopy (4) II

Two lectures and six hours of laboratory.

Prerequisites: Physics 2A-2B, Chemistry 11 or 12, Microbiology 101. Recommended: Biology 103, Microbiology 107, and Zoology 108.

Principles and techniques in the biological application of the electron microscope.

190. Investigation and Report in Microbiology (2) I, II

Prerequisites: Microbiology 101 and at least one additional upper division course in microbiology.

Investigation and reports on current microbiological literature.

198. Methods of Investigation (2) I, II

One discussion and three hours of laboratory.

Prerequisites: Microbiology 101 and one other upper division course in the biological sciences.

Selection and design of individual investigation in microbiology; oral and written reports. Four units maximum credit for Microbiology 198 or a combination of this course with Biology 198 or Zoology 198.

200. Seminar (2 or 3)**205. Seminar in Microbial Physiology (2)**

- 210. Seminar in Pathogenic Bacteriology (2)**
- 215. Seminar in Bacterial and Viral Genetics (2)**
- 220. Seminar in Industrial and Agricultural Microbiology (2)**
- 230. Seminar in Medical Mycology (2)**
- 240. Seminar in General Microbiology (2)**
- 245. Seminar in Aquatic Microbiology (2)**
- 250. Seminar in Virology (2)**
- 260. Seminar in Immunology and Serology (2)**
- 270. Biology of Animal Pathogenic Fungi (4)**
- 271. Bacterial Viruses (Bacteriophages) (4)**
- 272. Advanced Pathogenic Bacteriology (4)**
- 290. Bibliography (1)**
- 291. Research Techniques (3)**
- 297. Research (1–3)**
- 298. Special Study (1–3)**
- 299. Thesis or Project (3)**

Music

In the College of Professional Studies

The Department of Music is a member of the National Association of Schools of Music.

Faculty

Emeritus: Smith, L. D., Springston

Professors: Anderson, P. V., Biggs, Blyth, Genzlinger, Hogg, Hurd, Lambert, Savage, Smith, J. D. (Chairman), Snider, Ward-Steinman

Associate Professors: Bruderer, Brunson, Estes, Forman, Mracek, Sheldon

Assistant Professors: Almond, Ernst, Flye, Hill, H., Logan, Loomis, Mitchell, Moe, J., Rohfleisch, M., Yates

Lecturer: Overton

Offered by the Department

Master of Arts in music.

Major in music with the A.B. in liberal arts and sciences.

Bachelor of Music in applied arts and sciences.

Minor in music.

Teaching major in music with specialization in secondary teaching.

Teaching majors in fine arts, fine arts and humanities, and fine arts and social sciences, with a concentration in music. *See Education.*

Teaching Minor in Music with Specialization in Elementary and Secondary Teaching

The music curricula are designed to fulfill the needs of all students: (1) those who have professional ambitions in music performance, or seek a foundation for graduate study leading to college or university teaching, (2) those who are preparing for one of the several state teaching credentials with music as either a major or minor, (3) those whose major professional interest is in another department, and are seeking musical study as a minor, and (4) those who are interested in music as an elective study area for the enrichment of their cultural background.

General Basic Requirements

General basic requirements for the B.M. degree in applied arts and sciences, the A.B. degree with a major in music in liberal arts and sciences or in teacher education are as follows:

1. Upon entering the department, each student is required to take an examination in piano for classification, and to commence on no less than four consecutive semesters of class piano study for credit.

2. Upon entering the department, each student is required to declare his major instrument (voice, piano, clarinet, etc.), take an examination thereon for classification, and continue the development of his performance ability on that instrument through continuous study for credit after admission to the program.

3. Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.

4. As laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for eight semesters for students with the major in applied arts and sciences, or for seven semesters for students in the teaching credential program, one of which must be a major group (choir, piano ensemble, orchestra, or band) in which the major instrument or voice is regularly used.

Major

With the A.B. Degree in Liberal Arts and Sciences

Students should choose French, German or Italian to meet the foreign language requirement for graduation.

Preparation for the major. Music 9A, 9B, 10A-10B-10C, 59A, 59B or 106, 52, and four units of Music 50. (21 units.)

Major. A minimum of 24 upper division units to include Music 108, 152A, 152B, six units selected from 154A-154B-154C-154D-154E, four units selected from 170 through 188, six units of upper division electives.

With the B.M. Degree in Applied Arts and Sciences

Preparation for the major. Music 9A-9B, 10ABCD (may be waived in full or in part by examination), 52, 59A-59B, eight units selected from courses numbered 70-88, and four units in the major instrument. (26-30 units.)

Major. Thirty-two to 34 upper division units to include Music 108, 109A, 146A, 146B, 152A, 152B; eight units selected from courses numbered 170-188; four units of courses in the major instrument; Music 106; and the requirements in one of the following fields of emphasis:

(a) *Performance.* Five units from Music 153, 154ABCDE, 167, 197, 199.
Students emphasizing performance must appear in a joint recital during the junior year and must present a solo recital during the senior year. The student must pass an audition of the compositions to be performed before the music faculty preceding the recitals.

(b) *Music History and Literature.* Seven units from Music 154ABCDE, 197, 199.
During his senior year, the student emphasizing music history and literature is required to organize, prepare program notes, and present two recitals consisting of recorded or "live" performances. Each will deal with representative works of a certain period or composer or with certain periods, composers, or styles to be compared. Such students must pass a preliminary audition of the material to be presented before the music faculty at least one month in advance of each performance.

(c) *Composition.* Seven units from Music 105, 109B, 197, 199.
An interview with the Department Chairman is required for admission to this emphasis. Students electing the emphasis will take Music 7 in the spring term of the freshman and sophomore years and Music 107 in the spring term of the junior year in lieu of private study in composition.

The student emphasizing creative activity and composition is required to present a concert of his compositions during the senior year and present the scores of works to be performed to the music faculty one month in advance of the performance.

Foreign Language Requirement. Twelve units in one foreign language chosen from French, German, or Italian, or equivalent knowledge demonstrated in a test of reading knowledge administered by the foreign languages department concerned in consultation with the Music Department. (Exception: Voice students must substitute four units each of French, German, and Italian, or the equivalent, in lieu of 12 units in one foreign language.)

Outline of Specific Requirements

First Year	Units	Second Year	Units
Music 9A-9B	6	Music 52	2
†Music 10A-10B	0-2	†Music 10C-10D	0-2
Music organization courses num- bered 70-88	4	Music 59A-59B	6
Major instrument	2	Music organization courses num- bered 70-88	4
Health Science and Safety 21.....	2	Major instrument	2
Psychology 1	3	American institutions	6
English 3	3	Foreign language	4
Speech Communication 3 (or 4)	2	Natural science	3
Lit., philos., and the arts	3	P.E. activities	1
Foreign language	4		
P.E. activities	1		28-30

† May be waived in part or in full by examination.

<i>Third Year</i>	<i>Units</i>	<i>Fourth Year</i>	<i>Units</i>
Music 108	2	Music 109A	2
Music 146A-146B	2	Music 106	3
Music 152A-152B	6	Major instrument	2
Major instrument	2	Music organization courses num-	
Music organization courses num-		bered 170-188	4
bered 170-188	4	Units from one of the fields of	
Natural science	6	emphasis listed below	5-7
Social science	3	(a) <i>Performance</i> : Five units from	
Foreign language	4	Music 153, 154ABCDE, 167, 197	
Lit., philos., and the arts	3	199.	
	32	(b) <i>Music History and Litera-</i>	
		<i>ture</i> : Seven units from Music	
		154ABCDE, 197, 199.	
		(c) <i>Composition</i> : Seven units	
		from Music 105, 109B, 197, 199.	
		†Electives	14-16
			30-34

† In addition to the upper division courses in the major, the student must have a sufficient number of upper division units to meet the minimum of 40 required for the A.B. degree.

Minor

The general basic requirements for the minor in music are as follows:

- (1) Demonstration of vocal or instrumental performing ability before admission to the minor program may be granted.
- (2) Proficiency in piano equivalent to Music 10ABCD.

Coursework in the minor consists of 21 units in music to include the following: In the lower division, Music 9A, 9B, 52, and 59A; in the upper division, Music 151, three units selected from courses numbered 170-188, and four units from Music 150.

Major for the Standard Teaching Credential

Students in teacher education may use this major, with specialization in secondary teaching, for the A.B. degree in applied arts and sciences by completing additional departmental requirements in recital attendance and performance, and proficiency examinations in voice and piano.

Preparation for the major. Music 9A, 9B, 59A, 59B; 10-A-B-C-D, 15A, 15B, 52; eight units selected from courses numbered 70 through 88; four units selected from courses numbered 20 through 35; and four units in the major instrument. (36 units.)

Teaching Major (Undergraduate). Thirty units to include Music 108, 109A; three units selected from courses numbered 120 through 135; Music 146A, 146B, 152A, 152B; six units selected from courses numbered 170 through 188; three units in the major instruments; four units of upper division music electives; and Ed 121R or 121S.

Proficiency Examination. In addition to the major, the credential candidate must pass a departmental proficiency examination in piano and voice, to include the following:

(a) Piano: Specific requirements may be obtained in the Music Department Office.

(b) Voice: Ability (1) to sing at least one song representative of each of the following periods of vocal literature: classic, romantic, modern; (2) to sing at sight any part of a four-part hymn.

Postgraduate Year. Confer with departmental adviser.

Minor for the Standard Teaching Credential

Specialization in Elementary Teaching

The teaching minor in music for elementary teaching is restricted to students admitted to and continuing in the credential program for elementary teachers. The teaching minor consists of not less than 20 units to include the following courses: Music 2, 10A-B-C, 15A, 15B, 143, 144, 145, 146A, and two units of music organization courses numbered 170-188.

Specialization in Secondary Teaching

The teaching minor in music for secondary teaching requires demonstration of vocal or instrumental performing ability by placement audition before admission to the minor program may be granted.

Coursework in the minor consists of 25 units to include the following: In the lower division, Music 9A-9B, 10A-10B-10C, 15A-15B, and 52; in the upper division, Music 146A-146B, four units in the major instrument, three units of music organization courses 170-188, and 3-6 units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, and 135. Music 10A-B-C may be waived in part or in full by examination, units waived to be used in courses 120A through 135.

Electives in Music

The Music Department offers certain courses for students who are interested in music as an elective study area for the enrichment of their cultural background. Courses particularly suited for these needs are Music 51 and 151 and the music courses numbered 70 to 88 and from 170 to 188. Some students will be musically prepared to elect courses which may or may not be included in this group. Enrollment by qualified students who wish to elect these courses is encouraged.

Applied Music Study for Credit

Credit may be allowed for applied music study under the following conditions:

1. Properly enrolled music majors may study applied music with resident faculty without an additional fee.
2. Properly enrolled music majors who elect to study off campus with a teacher approved by the Department of Music may do so and may apply for credit by examination. Application for such credit must be made each semester in the Office of the Registrar within the official time limits for filing a change of program. The examination will consist of the regular jury examination required of all music majors at the conclusion of each semester.
3. Students may under no circumstances change teachers in the middle of a semester without first securing the permission of the chairman of the Department of Music.
4. Prior to the start of applied study at San Diego State, the student is required to take a preliminary audition conducted by Department of Music faculty which will indicate his status at the beginning of his study.
5. Students who have dropped out of school or have stopped taking applied music for credit for one semester or more, upon resumption of that instruction for credit are required to present another preliminary audition.
6. At the end of each semester, the Department of Music will sponsor a jury examination to satisfy itself that its standards have been met.

2. Basic Musicianship for Non-Music Majors (3) I, II

Four hours.

Rudimentary music theory involving the elements of music: melody, rhythm, and harmony. Developing the understanding of these elements through instrumental and vocal experiences which include the use of unison and part-singing, the keyboard, and simple melodic and harmonic instruments.

7. Composition Laboratory (1) II

Three hours of laboratory.

Prerequisite: Consent of instructor.

Original writing in different homophonic and polyphonic forms for various media. May be repeated to a maximum of two units.

8A-8B. Comprehensive Musicianship (6-6) I, II

Four lectures and four hours of activity.

Prerequisite: Music 8A is prerequisite to 8B.

Direct analysis of musical forms as they have evolved historically; sight-singing, keyboard harmony, dictation, part-writing and counterpoint and, where relevant, orchestration, aesthetics, art and architecture, literature, and cultural history.

9A. Elementary Harmony (3) I, II

Four hours.

Sight-singing, dictation, keyboard harmony; traditional diatonic harmony, part-writing, analysis.

9B. Intermediate Harmony (3) I, II

Four hours.

Prerequisite: Music 9A.

Continuation of Music 9A, with applied emphasis upon part-writing.

10A-10B. Piano—Elementary Class Instruction (1-1) I, II

Two hours.

Prerequisite: Music 10A is prerequisite to 10B.

Basic keyboard experience through study of music reading, notation, scales, chords, and sight-reading covering a repertoire of beginning and intermediate songs and piano literature, with emphasis on keyboard harmony. Required of music majors and minors and credential candidates for teaching at the kindergarten-primary level.

10C-10D. Piano—Elementary Class Instruction (1-1) I, II

Two hours.

Prerequisite: Music 10B is prerequisite to 10C; and 10C to 10D.

Continuation of Music 10A-10B.

15A. Voice—Elementary Class Instruction (1) I, II

Two hours.

A class for beginners in the vocal field taking up the problems of breath control, tone placement, articulation and enunciation. Frequent classroom performance of simple songs.

15B. Voice—Elementary Class Instruction (1) I, II

Two hours.

Prerequisite: Music 15A.

More advanced songs with attention being given to interpretation, as well as continued work on tone, articulation and placement. Frequent performance before class required.

20A. Strings—Elementary Class Instruction (1) I

Two hours.

Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Not open to students with credit in Music 120A.

20B. Strings—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 20A or 120A.

Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A. Not open to students with credit in Music 120B.

25A. Clarinet and Flute—Elementary Class Instruction (1) I, II

Two hours.

Fundamentals of the clarinet and flute by lecture and acquisition of elementary skills. Not open to students with credit in Music 125A.

25B. Oboe and Bassoon—Elementary Class Instruction (1) I, II

Two hours.

Fundamentals of oboe and bassoon by lecture and acquisition of elementary skills. Not open to students with credit in Music 125B.

30A. Brass—Elementary Class Instruction (1) I

Two hours.

Fundamentals of the trumpet and French horn by lecture and acquisition of elementary skills. Not open to students with credit in Music 130A.

30B. Brass—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 30A or 130A.

Fundamentals of the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Not open to students with credit in Music 130B.

35. Percussion—Elementary Class Instruction (1) 1, II

Two hours.

Fundamentals of percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Not open to students with credit in Music 135.

50. Applied Music—Individual Study (1) I, II

Fifteen one-half hour private lessons or two one-hour group sessions.

Studies in technical, stylistic, and aesthetic elements of artistic performance. For conditions under which credit may be given, see Applied Music Study for Credit in the section on the music major. Maximum credit for each instrument four units.

A. Piano

B. Organ

C. Voice

D. Flute

E. Oboe

F. Clarinet

G. Saxophone

H. Bassoon

J. French Horn

K. Trumpet

L. Trombone

M. Baritone Horn

N. Tuba

O. Percussion

P. Violin

Q. Viola

R. Cello

S. Contrabass

T. Harp

U. Classical Guitar

V. Composition

X. Classical Accordion

Y. Harpsichord

51. Introduction to Music (3) I

Practical approach to hearing music with understanding and pleasure, through study of representative compositions of various styles and performance media, great musicians and their art. Music correlated with other arts through lectures, recordings, concerts. Closed to music majors and minors.

52. Orientation in Music Literature (2) I, II

The elements of musical style, structure, and media of expression as found in representative musical literature. Lectures, text, and assigned study of phonograph recordings and musical scores.

53. Opera Technique (2) I, II

Four hours.

The interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble.

58A-58B. Comprehensive Musicianship (6-6) I, II

Four lectures and four hours of activity.

Prerequisite: Music 8B; Music 58A is prerequisite to 58B.

Continuation of Music 8A and 8B.

59A. Advanced Harmony (3) I, II

Four hours.

Prerequisite: Music 9B.

Continuation of Music 9B. Chromatic harmony, remote modulation, introduction to twentieth century techniques; analysis and writing.

59B. Eighteenth Century Counterpoint (3) I, II

Four hours.

Prerequisite: Music 59A.

Two- and three-voice counterpoint in the eighteenth century manner; compositional exercise in appropriate forms.

Performance Organization Courses

The performance organization courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

70. Chamber Music (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. Maximum credit four units.

75. Marching Band (1) I

Concurrent registration in Music 75 and 76 required. Combined activity, six hours.

Prerequisite: Consent of instructor.

Maximum credit two units.

76. Symphonic Band (1) I, II

Semester I: Concurrent registration in Music 75 and 76 required. Combined activity, six hours.

Semester II: Activity, five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

80. Symphony Orchestra (1) I, II

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

85. Concert Choir (1) I, II

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

86. Treble Clef (1) I, II

Three hours.

Maximum credit four units.

87. Men's Glee Club (1) I, II

Three hours.

Maximum credit four units.

88. College Chorus (1) I, II

Three hours.

Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. Maximum credit four units.

89. Jazz Ensemble (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

90. Collegium Musicum (1) I, II

Prerequisite: Consent of instructor.

Maximum credit four units.

105. Modern Harmonic Practice (3) I, II

Prerequisite: Music 59A.

Analysis and composition in modern idioms.

106. Sixteenth Century Counterpoint (3) I, II

Prerequisite: Music 59A.

Contrapuntal techniques of the sixteenth century, as revealed in the works of Palestrina, Lassus, and Ingegneri. Compositional exercises in setting parts of the Mass and in writing motets.

107. Composition Laboratory (1) II

Three hours of laboratory.

Prerequisites: Music 7 and consent of instructor.

Continuation of Music 7. Maximum credit two units.

108. Form and Analysis (2) I, II

Prerequisite: Music 59A.

Musical structure and design from traditional and modern literature; development of detailed analytical techniques.

109A-109B. Instrumentation and Arranging (2-2) I, II

Prerequisite: Music 59A. Music 109A is prerequisite to 109B.

Arranging of music for full orchestra. Selected works of students to be performed by standard orchestras.

120A. Strings—Elementary Class Instruction (1) I

Two hours.

Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Not open to students with credit in Music 20A.

120B. Strings—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 20A or 120A.

Fundamentals of violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A. Not open to students with credit in Music 20B.

123-5. Workshop in Instrumental Techniques and Chamber Music for String, Woodwind, and Brass Instruments (2) Summer

Prerequisite: Consent of instructor.

The analysis and interpretation of the literature for each instrument, with performance in various ensemble units; both group and individual instruction in class, under performing professional musicians.

125A. Clarinet and Flute—Elementary Class Instruction (1) I, II

Two hours.

Fundamentals of the clarinet and flute by lecture and acquisition of elementary skills. Not open to students with credit in Music 25A.

125B. Oboe and Bassoon—Elementary Class Instruction (1) I, II

Two hours.

Fundamentals of oboe and bassoon by lecture and acquisition of elementary skills. Not open to students with credit in Music 25B.

130A. Brass—Elementary Class Instruction (1) I

Two hours.

Fundamentals of the trumpet and French horn by lecture and acquisition of elementary skills. Not open to students with credit in Music 30A.

130B. Brass—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 30A or 130A.

Fundamentals of the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Not open to students with credit in Music 30B.

135. Percussion—Elementary Class Instruction (1) I, II

Two hours.

Fundamentals of percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Not open to students with credit in Music 35.

140. Marching Band Shows (2) I

Two hours.

Prerequisite: Two semesters of Music 75 or 175.

The organizing, charting, and producing of half-time shows for football games for prospective high school teachers. Shows are planned and produced by the students and performed by the Marching Band.

141. Applied Music Pedagogy (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Consent of instructor.

Teaching beginning and intermediate applied music. Survey and evaluation of teaching materials. Observation of individual or group lessons.

A. Piano

B. Strings

142. Applied Music Pedagogy Laboratory (2) I, II

One lecture and three hours of laboratory.

Prerequisite: Music 141A is prerequisite to 142A and 141B is prerequisite to 142B.

Practical experience in the teaching of individual or group lessons.

A. Piano

B. Strings

143. Music Literature for Elementary Teachers (3) I, II

Prerequisites: Music 2 or 9A.

Music literature suitable for teaching at the elementary school level; includes background information and ways of classroom presentation.

144. Music of the People (3) I, II

Prerequisite: Music 2 or 9A.

The origin and development of folk music; the social instruments and their use. Participation in singing and playing folk music.

145. Music in Contemporary Life (3) I, II

Prerequisite: Music 2 or 9A.

Functional music in society to include its psychological, physical and recreational uses; music as communication; the composer, the musician, and the audience.

146A. Choral Conducting (1) I, II

Three hours.

Prerequisite: Junior standing.

Elements of baton technique and development of basic skills common to choral conducting. Representative literature and techniques for choral organizations will be studied and performed. Practical experience in typical conducting situations will be emphasized in various grade levels.

146B. Instrumental Conducting (1) II

Three hours.

Prerequisite: Music 146A.

Orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performances.

147. Perspectives in Music (3) I, II

Prerequisite: Music 2 or 9A.

Musical understandings from non-performance aspects and perspectives regarding the relationships of music to the visual arts and the humanities.

150. Applied Music—Individual Study (1) I, II

Fifteen one-half hour private lessons or two one-hour group sessions.

Studies in technical, stylistic, and aesthetic elements of artistic performance. For conditions under which credit may be given, see Applied Music Study for Credit in the section on the music major. Maximum credit for each instrument four units.

A. Piano

B. Organ

C. Voice

D. Flute

E. Oboe

F. Clarinet

G. Saxophone

H. Bassoon

J. French Horn

K. Trumpet

L. Trombone

M. Baritone Horn

N. Tuba

O. Percussion

P. Violin

Q. Viola

R. Cello

S. Contrabass

T. Harp

U. Classical Guitar

V. Composition

X. Classical Accordion

Y. Harpsichord

151. Great Music (3) I, II

Significant music literature of the various historical periods with emphasis on the stylistic characteristics through directed listening.

A. Musical Masterpieces of the 18th and 19th Centuries.

B. Musical Masterpieces of the 20th Century.

C. Masterpieces of Grand Opera.

D. Twentieth Century American Jazz.

152A-152B. History of Music (3-3) I, II

Prerequisites: Music 52 and 59A; Music 152A is prerequisite to 152B.

The chronological development of musical art and forms from the Middle Ages to the present. Analytical score study and assigned recordings. Familiarity with musicological resources through individual assignments.

153. Opera Technique (2) I, II

Four hours.

Interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.

154. Music Literature (2) I, II

Prerequisites: Music 52 and 59A.

A concentrated study of the literature in the several areas listed. Analysis by use of scores and of recordings, when available.

- A. Chamber Music Literature—Strings
- B. Small Wind and Percussion Ensemble Literature
- C. Symphonic Literature
- D. Keyboard Literature
- E. Song Literature

167. Junior Recital (1) I, II

Prerequisite: Junior standing in music.

Selection of literature for recital program not to exceed thirty minutes in length; theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.

197. Senior Recital (2) I, II

Prerequisite: Senior standing in music.

Selection of literature for recital program not to exceed one hour in length; theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.

Performance Organization Courses

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

170. Chamber Music (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. Maximum credit four units.

175. Marching Band (1) I

Concurrent registration in Music 175 and 176 required. Combined activity, six hours.

Prerequisite: Consent of instructor.

Maximum credit two units.

176. Symphonic Band (1) I, II

Semester I: Concurrent registration in 175 and 176 required. Combined activity, six hours.

Semester II: Five hours per week.

Prerequisite: Consent of instructor.

Maximum credit four units.

180. Symphony Orchestra (1) I, II

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

185. Concert Choir (1) I, II

Five hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

186. Treble Clef (1) I, II

Three hours.

Maximum credit four units.

187. Men's Glee Club (1) I, II

Three hours.

Maximum credit four units.

188. College Chorus (1) I, II

Three hours.

Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. Maximum credit four units.

189. Jazz Ensemble (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

190. Collegium Musicum (1) I, II

Three hours.

Prerequisite: Consent of instructor.

Maximum credit four units.

200. Seminar in Music Education (3) I, II

A. Development and Teaching of Strings

B. Choral and Vocal Techniques

C. General Music

201. Foundations of Music Education (3) I, II**202. Administration and Supervision of Music Education (3) I, II****204. Comparative Music Education (3) I, II****207. Composition (2 to 3)****208. History and Development of Music Theory (3)****209. Advanced Orchestration (2) I, II****210. Electronic Music (3) I, II****211. Analytical Studies of Music (3) I, II****212. Advanced Contrapuntal Techniques (3) I, II****213. Seminar: Music Theory (3) I, II****246A. Advanced Choral Conducting (2)****246B. Advanced Instrumental Conducting (2)****250. Applied Music—Advanced Individual Study (2)**

A. Piano

B. Organ

C. Voice

D. Flute

E. Oboe

F. Clarinet

G. Saxophone

H. Bassoon

J. French Horn

K. Trumpet

L. Trombone

M. Baritone Horn

N. Tuba

O. Percussion

P. Violin

Q. Viola

R. Cello

S. Contrabass

T. Harp

U. Classical Guitar

V. Composition

X. Classical Accordion

Y. Harpischord

252. Seminar in Music History (3)

- A. Music of the Middle Ages and Renaissance
- B. Music of the Baroque Era
- C. Music of the Eighteenth and Nineteenth Centuries
- D. Twentieth Century Music
- E. American Music

253. Musicology (3)**255. Seminar: A Major Composer (3) I, II****260. Seminars in the Notation of Polyphonic Music (3)**

- A. Notation of Soloistic Music: Scores and Tablatures.
- B. Notation of Ensemble Music: White Mensural Notation.
- C. Notation of Ensemble Music: Black Notation to the End of Franconian Notation.
- D. Notation of Ensemble Music: French, Italian, Mixed and Mannered Notation.

270. Seminar: Interpretation of Early Music (3) I, II**290. Research Procedures in Music (3)****298. Special Study (1–3)****299. Thesis or Project (3)**

Nursing

In the College of Professional Studies

Agency Member of the National League for Nursing

Accredited by the California Board of Nursing Education and Nurse
Registration and by the National League for Nursing

Faculty

Professors: Atkinson (Acting Director), Blackmon, Coakley, Coveny, Johnson,
E. G., Lee, P., Moses

Associate Professors: Black, Laiho, Salerno

Assistant Professors: Flagg, J., Himes, La Monica, LaSor, Laws, Leslie, Maire,
Moffett

Instructors: Brown, C., Conway, Hull, Mayberry

Lecturers: Johnson, D., Richards, T.

Offered by Nursing

Major with the B.S. in applied arts and sciences

Major with the B.S. in Applied Arts and Sciences

The curriculum in nursing requires completion of a minimum of 128 units as prescribed, with a grade of C or better in each nursing course completed in satisfaction of requirements for the degree. Directed clinical experience in hospitals and health agencies in San Diego County is an integral part of the program. Graduates are eligible to apply for licensing as a registered nurse in California and to apply for the California Certificate of Public Health Nursing.

All students, including registered nurses, are subject to the same requirements. However, graduates of associate degree and diploma programs in nursing may, after evaluation of their competency, be placed in appropriate advanced nursing classes.

Preparation for the major. Chemistry 2A-2B; Microbiology 1; Zoology 8; Biology 9; Sociology 1; Psychology 1; three units in normal nutrition; three units in human growth and development; three units in personality development; three units in marriage and the family. (37 units.)

Major. A minimum of fifty units in Nursing to include Nursing 100A-100B, 101, 102, 103, 104, 105, 106, 116, 130, 131, 132, 133, 134, 135, 136, 137. Any grade below a C is unacceptable in nursing courses.

Prerequisites

Enrollment in a nursing course will be canceled if the student has not completed the prerequisites for the course with a grade of C or better.

100A-100B. Foundations of Nursing (2-2) I, II

One lecture and three hours of laboratory.

Prerequisites: admission to the nursing major; and concurrent registration in Nursing 101, 102, 103, 104. 100A is prerequisite to 100B.

Principles and practice of nursing to meet the basic needs of patients.

101. Maternal-Neonatal Nursing (3) I, II

Prerequisites: Three units in marriage and the family. Concurrent registration in Nursing 100A.

Principles of care of mothers, and newborn infants with emphasis on the importance of family relationships. Not open to students with credit in Nursing 112.

102. Maternal-Neonatal Nursing Experience (3) I, II

Nine hours of laboratory.

Prerequisite: Concurrent registration in Nursing 101.

Directed clinical experience in the care of mothers and newborn infants including all phases of the maternity cycle.

103. Psychiatric and Mental Health Nursing (3) I, II

Prerequisites: Three units in human growth and development; three units in personality development; and concurrent registration in Nursing 102.

Basic principles of communication and interpersonal relations in nursing; recognition of normal and disturbed communication; principles and techniques for dealing with continuum of normal and abnormal behavior. Not open to students with credit in Nursing 118.

104. Psychiatric and Mental Health Nursing Experience (3) I, II

Nine hours of laboratory.

Prerequisite: Concurrent registration in Nursing 103.

Directed clinical experience, focusing on the psychotherapeutic role of the nurse in a variety of settings.

105. Nursing Care of the Adult Patient (4) I, II

Prerequisites: Nursing 100A. Concurrent registration in Nursing 100B and 106.

Study of health problems of adults resulting from deviations in homeostasis and of medical and/or surgical therapies and nursing therapies utilized to restore optimum health. Not open to students with credit in Nursing 33B and 34B.

106. Experience in Nursing Care of the Adult Patient (4) I, II

Twelve hours of laboratory.

Prerequisite: Concurrent registration in Nursing 105.

Directed clinical experience in the care of adult patients with medical and/or surgical health problems.

116. Trends in Nursing (2) I, II

Prerequisite: Credit or concurrent registration in Nursing 105.

Place of nursing in world history and the present social order.

118. Psychiatric Nursing (5) I, II

Two lectures and nine hours of laboratory.

Prerequisite: Credit or concurrent registration in Psychology 131.

Major concepts of psychiatric nursing and mental health that are involved in care of the mentally ill; therapies and rehabilitation measures. (This course will be offered for the last time in 1971-72.)

120. Practicum in Clinical Nursing (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Nursing 112, 114, and 116.

Development of ability for making a nursing diagnosis, and taking appropriate action. (This course will be offered for the last time in 1971-72.)

124. Leadership Roles in Nursing (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Nursing 116.

Professional and legal responsibilities of the nurse; selected practice activities in the role of team leader. (This course will be offered for the last time in 1971-72.)

125. Public Health Nursing (4) I, II

Prerequisites: Nursing 112, 114, and credit or concurrent registration in Nursing 126.

Principles of Public Health Nursing and organization and administration of health services. (This course will be offered for the last time in 1971-72.)

126. Public Health Nursing Practice (5) I, II

Fifteen hours of laboratory.

Prerequisite: Concurrent registration in Nursing 125.

Guided public health nursing practice in community health agencies, out-patient clinics, schools and homes. (This course will be offered for the last time in 1971-72.)

130. Child Health Nursing (2) I, II

Prerequisites: Nursing 106. Concurrent registration in Nursing 131, 132, 133.

Nursing care needs of the well and the sick child from birth through adolescence. Not open to students with credit in Nursing 114.

131. Child Health Nursing Experience (4) I, II

Twelve hours of laboratory.

Prerequisite: Concurrent registration in Nursing 130.

Directed clinical experience in hospitals, clinics, and schools.

132. Community Health Nursing (3) I, II

Prerequisites: Three units in community epidemiology; Nursing 106. Concurrent registration in Nursing 131.

Community facets with emphasis on the family centered approach in providing nursing service. Not open to students with credit in Nursing 125.

133. Community Health Nursing Experience (3) I, II

Nine hours of laboratory.

Prerequisite: Concurrent registration in Nursing 132.

Directed experience in a community health agency which encompasses as its objective the promotion of health and the prevention of disease of each member of the family. Not open to students with credit in Nursing 126.

134. Advanced Medical-Surgical Nursing (2) I, II

Prerequisites: Nursing 130. Concurrent registration in Nursing 135.

Common problems in the care of the acutely ill patient and the patient with continuing health problems requiring a planned rehabilitation program. Not open to students with credit in Nursing 120.

135. Experience in Advanced Medical-Surgical Nursing (2) I, II

Six hours of laboratory.

Prerequisite: Concurrent registration in Nursing 134.

Directed clinical experience in the nursing care of the acutely ill patient and the long-term patient requiring rehabilitation and teaching.

136. Leadership in Professional Nursing (2) I, II

Prerequisites: Nursing 130. Concurrent registration in Nursing 116 and 137.

Principles of leadership and supervision are stressed as a means of developing effective relationships within the health team. The leadership role of the professional individual is emphasized in relation to his responsibility as a citizen. Not open to students with credit in Nursing 124.

137. Management of Patient Care in a Nursing Unit (2) I, II

Six hours of laboratory.

Prerequisite: Concurrent registration in Nursing 136.

Directed clinical experience in planning, directing, giving, and evaluating patient care in a nursing unit. Team nursing concept and methods are utilized. Methods of evaluating clinical work are included.

160. School Nursing (3) Extension

Prerequisite: Nursing 125, or equivalent to be determined by examination.

The application of health principles and current best practices in schools with emphasis on the functions of the school nurse related to the school, home, and community.

175. Nursing in School Health Services (2) I, II

Prerequisites: Nursing 125, 126; concurrent registration in Nursing 176.

The philosophy of school health, the functions and responsibilities of the school nurse in planning, organizing and implementing a program of school health services.

176. Practicum in School Health Nursing Services (4) I, II

Twelve hours of laboratory.

Prerequisites: Nursing 125, 126; concurrent registration in Nursing 175.

Supervised field practice and experience in public school nursing.

Oceanography

Administered by the Dean of the College of Sciences

100. The Oceans (2) I, II

Prerequisites: One introductory college course in a life science and one in a physical science.

Biological and physical aspects of the oceans and their significance to man; problems of modern oceanography.

For additional courses in Oceanography see

Biology 113. Biological Oceanography.

Chemistry 180. Chemical Oceanography

Geology 140. Marine Geology

Microbiology 116. Marine Microbiology

Physical Science 110. Physical Oceanography

Zoology 150. Marine Biology

Philosophy

In the College of Arts and Letters

Faculty

Professors: Crawford, P. (Chairman), Howard, R., McClurg, Nelson, S., O'Reilly, Ruja, Shields, Snyder, Warren, E. W.
 Associate Professors: Koppelman, Lauer, Weissman
 Assistant Professors: Carella, Feenberg, Rosenstein, Troxell
 Lecturer: Starsky

Offered by the Department

Master of Arts degree in philosophy.
 Major in philosophy with the A.B. degree in liberal arts and sciences.
 Minor in philosophy.

Major with the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. Nine lower division units in philosophy.

Major. A minimum of 24 upper division units in philosophy. Six units from Philosophy 101, 102, 103, 104, and 175; and six units from Philosophy 121, 122, 123, 125, and 128 are recommended.

Minor

The minor consists of 15 units in philosophy, nine of which must be upper division. Philosophy 101 is recommended.

1A-1B. Introduction to Philosophy (3-3) I, II

Prerequisite: Philosophy 1A, or consent of instructor, is prerequisite to 1B.

The place of philosophy in intelligent living. The methods, areas, and significance of philosophical inquiry. Each student is encouraged to think independently and formulate his own tentative conclusions. In Philosophy 1A, emphasis is placed upon problems of value. In Philosophy 1B, emphasis is placed on problems of knowledge and reality.

20. Logic (3) I, II

Introduction to deductive and inductive logic. Logic and language. Analysis of fallacies. Uses of logic in science and in daily life.

101. History of Philosophy I (3) I, II

Prerequisite: Six units of philosophy.

Thales through Marcus Aurelius.

102. History of Philosophy II (3) I, II

Prerequisite: Philosophy 101.

Plotinus through William of Occam.

103. History of Philosophy III (3) I, II

Prerequisite: Philosophy 101.

Nicholas of Cusa through Kant.

104. History of Philosophy IV (3) I

Prerequisite: Philosophy 103.

Fichte through Royce.

105A-105B. Twentieth Century Philosophy (3-3)

Prerequisite: Philosophy 1B.

Historical treatment of major philosophical issues, movements, and figures in American and European philosophy. First semester: emphasis on Great Britain and the United States; second semester: emphasis on continental Europe.

108. Recent Existentialism (3) I

Prerequisite: Six units of philosophy.

The philosophical aspects of Existentialism. Major emphasis is on the diversity of thought within a common approach as this is shown in individual thinkers.

109. Ordinary Language Analysis (3) II

Prerequisite: Six units of philosophy.

The application of linguistic analysis to basic philosophical problems.

110. Philosophy of Law (3) I

Prerequisite: Philosophy 1A, 1B or 20, and three units of Political Science.

The nature of law and the logic of legal reasoning. An exploration of certain key legal concepts such as causation, responsibility, personality, and property.

112. Political Philosophy (3) II

Prerequisite: Philosophy 1A.

Selected aspects of the political structures within which we live, such as law, power, sovereignty, justice, liberty, welfare.

121. Deductive Logic (3) I

Prerequisites: Philosophy 20 or Mathematics 60.

Principles of inference for symbolic deductive systems; connectives, quantifiers, relations and sets. Interpretations of deductive systems in mathematics, science, and ordinary language. Not open to students with credit in Mathematics 155.

122. Inductive Logic (3) II

Prerequisite: Philosophy 20.

Definition, classification, and division. The logic of experimentation and statistics. Formation and validation of hypotheses. Probability theories.

123. Theory of Knowledge (3) I

Prerequisite: Philosophy 1B.

The major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

125. Metaphysics (3) II

Prerequisite: Philosophy 1B.

Prominent theories of reality, e.g., realism and nominalism, materialism and idealism, teleology and determinism.

127. Values and Social Science (3) II

Prerequisite: Six units of philosophy.

Analysis and discussion of the nature of values and value-judgment with particular reference to the social sciences. Among relevant issues: the naturalistic fallacy, facts and values; authoritarianism, emotivism, objective relativism; the individual and the community.

128. Theory of Ethics (3) I

Prerequisite: Six units of philosophy.

Significant and typical value theories and systems and the concrete problems such theories seek to explain. The emphasis will be placed on moral values.

129. Social Ethics (3)

Prerequisite: Philosophy 1A.

Ethical issues of contemporary life. Individualism vs. collectivism; democracy vs. dictatorship; ethical problems arising in law, medicine, business, government, and interpersonal relationships.

131. Philosophy of Language (3) II

Prerequisite: Six units of philosophy.

An introduction to theories of meaning for natural languages and formal systems; concepts of truth, synonymy and analyticity; related epistemological and ontological problems.

132. Philosophy of History (3) I

Prerequisite: Six units of philosophy.

The nature of history and historical inquiry. As metaphysics: a study of theories of historical development. As methodology: history as science, truth and fact in history, historical objectivity, the purpose of history.

133. Philosophy of Education (3) II

Prerequisite: Philosophy 1B.

Various philosophical viewpoints concerning education. The functions of education as conceived by major figures in the western philosophical tradition.

134. Philosophy of Literature (3)

Prerequisite: Six units of philosophy.

Study of literature of philosophical significance, and of philosophical problems of literature.

135. Philosophy of Religion (3) I, II

Prerequisite: Six units of philosophy.

The philosophical significance of major themes in religious thought. The role of myth and the nature of religious language.

136. Jewish Philosophy (3)

Prerequisite: Three units of philosophy.

Outstanding men and movements, e.g., Biblical ethics and law, Philo of Alexandria, the rabbinical tradition, the Kabbala, Moses ben Maimon, Moses Mendelssohn, and Martin Buber.

137. Philosophy of Science (3) I

Prerequisite: Six units of philosophy.

The basic concepts and methods underlying contemporary scientific thought. Contributions of the special sciences to a view of the universe as a whole.

141. History of Aesthetics (3) I

Prerequisite: Philosophy 1A.

Major documents in the history of aesthetics.

142. Philosophy of Art (3) II

The nature of aesthetic experience. Principal contemporary theories of art in relation to actual artistic production and to the function of art in society. (Formerly Philosophy 136.)

164. American Philosophy (3)

Prerequisite: Six units of philosophy.

A systematic and critical study of the work of American philosophers from the Puritans through the Pragmatists. Major emphasis is placed upon Pierce, James, Royce, Santayana, Dewey, and Whitehead.

175. A Major Philosopher (3) I, II

Prerequisite: Philosophy 101.

The writings of one major philosopher. May be repeated with new content for additional credit. Maximum credit six units applicable to the major. Maximum credit six units applicable on a master's degree.

195. Selected Topics (3) I, II

Prerequisite: Six units of philosophy.

A critical analysis of a major problem or movement in philosophy. May be repeated for credit with different content. Maximum credit six units applicable toward the major in philosophy. Maximum credit six units for both 195 and 295 applicable on a master's degree.

201. Seminar in Ancient Philosophy (3)**202. Seminar in Medieval Philosophy (3)****203. Seminar in Modern Philosophy (3)****205. Seminar in Contemporary Philosophy (3)****211. Seminar in Legal Philosophy (3)****212. Seminar in Political Philosophy (3)****221. Seminar in Deductive Logic (3)****223. Seminar in Epistemology (3)****225. Seminar in Metaphysics (3)****228. Seminar in Ethics (3)****231. Seminar in Semantics and Logical Theory (3)****235. Seminar in Philosophy of Religion (3)****236. Seminar in Philosophy of Art (3)****237. Seminar in Philosophy of Science (3)****295. Seminar in Selected Topics (3)****298. Special Study (1-3)****299. Thesis (3)**

Physical Education

In the College of Professional Studies

Faculty

Emeritus: Schwob, Shannon, Sportsman

Professors: Andrus, Benton, Carter, Governali, Kasch, Lockman, Murphy, M. L., Olsen, A., Olsen, L., Phillips, W. H. (Chairman), Scott, Terry, Tollefsen, Ziegenfuss

Associate Professors: Broadbent, Cave, Cullen, Fox, Sucec, Wells

Assistant Professors: Barone, Franz, Freidman, Hollyfield, Landis, Palmiotto, Rountree, Selder, Smith, B., Whitby, Wilhelm, Williamson, G., Willis

Offered by the Department

Master of Arts in physical education.

Major in physical education with the A.B. in applied arts and sciences.

Teaching major in physical education with specialization in secondary teaching.

Minor in physical education.

Teaching minor in physical education with specialization in both elementary and secondary education.

Minor in dance.

Physical Education Major

With the A.B. Degree in Applied Arts and Sciences

Students majoring in physical education must complete a minor in another field.

Major for Men

Preparation for the major. Physical Education 8A, 9A, 10A, 12A, 29B, 52, 70, 71, 73; Zoology 8 (16½ units). Students may be excused from skill courses by passing a competency test.

Major. A minimum of 29 upper division units to include Physical Education 162, 164, 167, 168, 169, 172, 174, 175, 176, 177. Recreation 140, and four to six elective units to be selected from physical education.

Major for Women

Preparation for the major. Physical Education 33A, 33B, 34A, 34B, 52, 56A, 56B, one unit of physical education activity elective; Zoology 8 (14 units).

Major. Twenty-seven upper division units to include Physical Education 151 or 154, 155 or 156, 160, 167, 168, and 12 units from health education and/or physical education courses selected with approval of the department adviser.

Emphasis in Dance

Preparation for the major. Physical Education 48A, 48B, 54, 81, 82; one unit selected from Physical Education 33A, 33B, 34A, 34B; Zoology 8; and 16 units selected from Art 2A, 2B, 5, 50A, 50B, 61, Music 10A, 35, 51, Speech Communication 11A, Drama 5, 8, 30, 31, and 50. (28 units.)

Major. A minimum of 24 upper division units to include three to four units from Physical Education 151 or 153A, 154, 157A, 181, 182A, 182B, 183, 184, and two units of upper division electives to be selected with the approval of the dance adviser. In addition to course requirements, the student must be a member of the Dance-Theatre Group and must participate in a minimum of four semesters of dance programs preferably in the junior and senior years. Substitution for such participation will require departmental approval. (The physical education major with an emphasis in dance does not meet the credential pattern for education.)

For the Standard Teaching Credential, with Specialization in Secondary Teaching

Major for Men

Requirements are the same as the requirements for the A.B. degree in applied arts and sciences as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six units of 200-numbered courses approved by the department adviser.

Major for Women

Candidates for a teaching major for women must in addition to the basic requirements, select the generalist program or two areas of concentration. Courses may be used to satisfy requirements in more than one concentration.

Basic Requirements for All Students

Preparation for the major. Physical Education 11A, 29B, 32A, 33A, 34A, 47A, 55A-55B, 56A or 56B, Zoology 8 (10 units).

Major. Thirty upper division units to include Biology 140, Physical Education 160, 162, 167, 168 (15 units).

Postgraduate Year. Six units of 200-numbered courses approved by the department adviser.

Generalist Program

Additional preparation for the major. Physical Education 7A, 33B, 34B, 52, 56A-56B (5½ units).

Major (continued). Physical Education 151, 152, 154, 155, 156, and 122 or 172 (16-17 units).

Concentrations

a) Team Sports

Additional preparation for the major. Physical Education 7A, 52, 57A or 57B, 58A or 58B, ½ unit intramural or extramural sport, and 1 unit of elective (6 units).

Major (continued). Physical Education 156; 9 units selected from 151, 152, 154, 155, 172, and 3 units electives (15 units).

b) Individual Sports

Additional preparation for the major. Physical Education 7A, 16B, 17B, 18B, 19A or 19B, 20B, 22A or 22B, 52, and ½ unit of elective (6 units).

Major (continued). Physical Education 155; 9 units selected from 151, 152, 154, 156, 172, and 3 units of electives (15 units).

c) Gymnastics

Additional preparation for the major. Physical Education 40, 46, 47B, 52, and 2 units of electives (6 units).

Major (continued). Physical Education 152; 9 units selected from 151, 154, 155, 156, 172, and 3 units of electives (15 units).

d) Aquatics

Additional preparation for the major. Physical Education 7A, 24A, 30A or 30B, 36A, 50, and 3 units of electives (6 units).

Major (continued). Physical Education 122; 9 units selected from 151, 152, 154, 155, 156; and 3 units of electives (15 units).

e) Folk Dance

Additional preparation for the major. Physical Education 33B, 52 or 81, 82, and 1½ units of electives (6 units).

Major (continued). Physical Education 151; 9 units selected from 152, 154, 155, 156, 172; and 3 units of electives.

f) Modern Dance

Additional preparation for the major. Physical Education 34B, 39, 48A-48B, 81, 82 (6 units).

Major (continued). Physical Education 154; 9 units selected from 151, 152, 155, 156, 172; and 3 units 157A-157B, 183 (15 units).

Physical Education Minor

The minor, planned in consultation with an adviser, consists of 15 units in physical education, nine of which must be upper division.

Physical Education Minor

For the Standard Teaching Credential

Specialization in Elementary Teaching

Minor for men. The minor in physical education (men) for elementary teaching consists of not less than 20 units to include, in the lower division, Physical Education 53, 71, 73, and four units to be selected from physical education or recreation; and, in the upper division, Physical Education 175, 177, Health Education 146, Recreation 140, and two units to be selected from physical education or recreation.

Minor for women. The minor in physical education (women) for elementary teaching consists of not less than 22 units to include, in the lower division, Physical Education 1A, 7A, 7B, 33A, 34A, 33B or 34B, 52, 56A, 56B, Recreation 70, and one unit elective; and in the upper division 11 units to include Physical Education 151 or 154, 152, 156, and 162.

Specialization in Secondary Teaching

Minor for men. The minor in physical education (men) for secondary teaching consists of a minimum of 24½ units to include, in the lower division, Physical Education 8A, 9A, 10A, 12A, 29B, 52, 71, and 73; and, in the upper division, Physical Education 174, 175, 176, 177, Recreation 140, Health Education 146, and two to three units to be selected from either Physical Education 180 series, field experiences in intramurals, or recreation, or Physical Education 151.

Minor for women. The minor in physical education (women) for secondary teaching consists of a minimum of 25 units to include, in the lower division, Physical Education 1A, 7A, 7B, 16A, 17A, 18A, 20A, 32A, 33A, 33B, 34A, 34B, 52, 56A, 56B; and in the upper division, 15 upper division units in physical education to include Physical Education 151 or 154, and 155 or 156.

Dance Minor

The minor in dance consists of Physical Education 33A–33B, 34A–34B, 48A–48B, 81, 82; two units selected from Physical Education 153A or 184, 181, 182A, and 182B; and 3 upper division units to be selected from the areas of art, music, drama, and others, with the approval of the adviser in dance. (21 units.)

Required Activity Courses

To meet general education requirements, four semesters of activity courses or monitored activity are required. All freshman and sophomore students must enroll in an activity course or monitored activity each semester. Two units are needed for general education and graduation, but no more than one activity course or monitored activity in any one semester may be counted toward this requirement. An activity course taken in the summer session may be counted in lieu of one taken during the fall or spring semester. Any combination of activity courses and monitored activity may be used.

Exemptions or Postponements

Veterans who have served a minimum of one continuous year in the United States armed forces are exempted from the general education requirement in physical education. Students over 25 years of age may also be exempted from the general education requirement in physical education upon approval by the Vice President for Academic Affairs or duly authorized representative. Students carrying fewer than 12 units during any semester may apply to the chairman of the Physical Education Department for a postponement of the physical education activity requirement. For reasons of health, the Director of Health Services may postpone the enrollment of a student in a physical education activity course. Permanent postponement from the activity requirement will not be made and a postponement does not eliminate the graduation requirement.

Types of Activity Courses

A health history record is required of each student entering college. Adapted physical education classes to care for special needs are offered. The content of the required courses is planned to give each student an opportunity to participate in many activities of carry-over value, developmental nature, and recreational interest. An opportunity is afforded students to participate in competitive sports in the extramural and intramural programs.

Courses offered for one-half unit credit meet two hours per week or equivalent. "A" signifies a beginning class, "B" intermediate or advanced.

- 1A-1B. Fundamental Skills ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 2A-2B. Conditioning ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 6A-6B. Team Sports ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 7A-7B. Gymnastics ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 8A-8B. Basketball ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 9A-9B. Soccer ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 10A-10B. Volleyball ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 11A-11B. Track and Field ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 12A-12B. Wrestling ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 16A-16B. Golf ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 17A-17B. Archery ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 18A-18B. Tennis ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 19A-19B. Bowling ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 20A-20B. Badminton ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 21A-21B. Handball ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 22A-22B. Fencing ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 24A-24B. Water Craft ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 29A-29B. Swimming ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 30A-30B. Synchronized Swimming ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 32A-32B. Ballroom Dancing ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 33A-33B. Folk and Square Dancing ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 34A-34B. Modern Dance ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**
- 36A-36B. Selected Activities ($\frac{1}{2}$ - $\frac{1}{2}$) I, II**

May be repeated with new activity for additional credit. See class schedule for semester offerings.

38. Individual Adaptives ($\frac{1}{2}$) I, II

Prerequisite: Consent of instructor.

Individual exercise programs for those who are handicapped in some respect, or who have functional defects, or deficiencies amenable to improvement through exercise. May be repeated for credit.

39. Basic Ballet ($\frac{1}{2}$) I

40. Ballet for Gymnastics ($\frac{1}{2}$) II

*Men and Women**Professional Theory Courses*

46. Rhythmic Gymnastics (1) I, II

Four hours of laboratory.

Progressive skills in free exercise, use of hand apparatus, and tumbling for gymnastics teachers.

47A-47B. Professional Activities: Gymnastics (Women) ($\frac{1}{2}$ - $\frac{1}{2}$) I, II

Two hours of laboratory.

Study and development of competencies, skills, and knowledges needed for teaching and coaching girls' and women's gymnastics.

73. Dance (Men) (2) I, II

Six hours of laboratory.

Competency development in dance. Emphasis on skills, movements, facilities, and organizational procedures in dance.

81. Introduction to Dance (2) I

Dance as an art form with emphasis on the development of contemporary trends; American dance personalities and their contribution. Required of all physical education majors with an emphasis in dance.

82. Rhythmic Analysis Related to Movement (2) II

Music as related to movement; notation and simple music forms applied to all movement activities; percussion accompaniment; writing of percussion scores; music repertoire for dance.

122. Water Safety Instruction (1) II

Four hours of lecture and laboratory.

Prerequisites: P.E. 29B or equivalent, and current American Red Cross Senior Life Saving Certificate.

Methods and materials for teaching swimming. Course designed to qualify expert swimmers for American Red Cross Swimming Instructors Certificate.

123. Skin and Scuba Diving (2) I, II

One lecture and three hours of laboratory.

Prerequisites: Thesis or class project requiring underwater collection techniques or Physical Education 29B. Medical examination, waiver for hazardous procedures, passage of competency test in swimming.

Functional knowledge of underwater diving to include diving physiology, hyperbaric conditions, medical hazards, safety procedures associated with Scuba Diving and proper care and operation of equipment.

151. Folk and Social Dance Skill Analysis (Men and Women) (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 32A and 33B, or completion of folk and social dancing competencies tests.

Folk customs, festivals, and costumes. Selection of dance materials for various age groups. Analysis of teaching techniques.

152. Gymnastics Skill Analysis (Women) (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 7A and 7B, or completion of competencies tests in gymnastics and related fields.

Advanced materials in tumbling and gymnastics with emphasis on safety devices, spotting, etc. Analysis of teaching techniques and progressions.

153A-153B. Problems in Dance (2-2)

Prerequisite: Physical Education 48A.

Problems in ethnic or modern dance: history, anthropological basis, stagecraft, accompaniment, costuming.

154. Modern Dance Skill Analysis (Women) (3) II

Two lectures and three hours of laboratory.

Prerequisite: Physical Education 34B, or completion of competencies tests in modern dance.

Advanced skill techniques with emphasis on individual choreography. Selection of materials and course planning for the secondary schools. Class teaching experience. Brief survey of basic literature and current readings in the field.

155. Individual Sports Skill Analysis (Women) (3) II

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 16A, 17A, 18A, 20A, or completion of competencies tests in archery, badminton, golf, and tennis.

Individual playing techniques, knowledge, rules, and teaching methods in tennis, badminton, archery and golf. Designed for senior majors in physical education who are expected to demonstrate a high degree of competency in the sports indicated.

156. Team Sports Skill Analysis (Women) (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 56A and 56B, or completion of competencies tests in basketball, hockey, soccer, speedball, softball and volleyball, and track and field.

Skills, teaching techniques, officiating, and the organization of materials in team sports for women.

157A-157B. Choreography in Contemporary Dance (Men and Women) (3-3)

Two lectures and three hours of laboratory.

Prerequisite: Consent of instructor.

Experimentation in dance, relating contemporary theories to other art forms.

Force and time-space relationships as factors of choreography. Semester I: Production problems for large and small groups. Semester II: Production problems for trios, duos, and solos.

160. Mechanics of Body Movement (Women) (3) II

Two lectures and three hours of laboratory.

Prerequisite: Physical Education 167.

Efficient use of the body in daily living; evaluation and classification of exercises, study of methods and practice in planning and presenting material.

161. The Psychological Bases of Physical Education (3) I, II

Prerequisite: Physical Education 162.

Current issues, experimentation, problems and literature involved in the psychology of motor learning and motor performance.

162. Measurement and Evaluation in Physical Education (3) I, II

Existing skills, tests, and other forms of evaluation used in physical education programs, including practical measuring and comparisons with norms, standards, etc. Closely related to required competencies tests for physical education majors with applications to use in teaching.

163. Physical Growth and Development (3) II

Principles of human growth; performance as affected by developmental levels and individual differences in structure and function.

164. Athletic Injuries (Sports Medicine) (2) I, II

One lecture and three hours of laboratory.

Prerequisite: Physical Education 167.

Prevention and care of athletic injuries. Environment and hazards of sports. First aid. Use of prescribed modalities.

165. Organization and Administration of Extracurricular Activities (3) I, II

Two lectures and one hour of laboratory.

Material covering the organization and administration of activities such as drill teams, extracurricular clubs, special events and programs, cheerleaders, intramural and extramural activities.

167. Applied Anatomy and Kinesiology (3) I, II

Prerequisites: Zoology 8 and Biology 140.

Arthrology, syndesmology, and myology, with special emphasis on movement analysis. Muscle groups and their functional relationships. Application of simple mechanical principles to movement analysis.

168. Physiology of Exercise (3) I, II

Prerequisites: Zoology 8 and Biology 140.

Effects of physical activities on the physiological functions of the body.

169. Adapted Activities (2) I, II

One lecture and three hours of laboratory.

Prerequisites: Physical Education 167 and 168, Biology 140, and Zoology 8.

Adaptation of programs for the atypical individual, including physical examinations, training, and prescribed exercises, follow-up, instructional problems, and evaluation.

171. History and Philosophy of Physical Education (3) Irregular

Review of the historical and philosophical bases for dance, exercise, games, and sports with emphasis on the United States.

172. Aquatics (2) I, II

Four hours.

Prerequisite: Physical Education 29B or demonstrated competency.

Emphasis on skills, movements, rules, officiating, facilities, and organizational procedures in aquatics.

174. Combatives (Men) (2) I, II

Four hours.

Prerequisite: Physical Education 12A or demonstrated competency.

Competency development in combatives. Review of skills, strategy, tactics, and emphasis on teaching and coaching procedures.

175. Team Sports (Men) (2) I, II

Four hours.

Prerequisites: Physical Education 8A, 9A, and 10A, or demonstrated competency.

Competency development in team sports. Emphasis on skills, strategy, tactics, rules, officiating, facilities, and organizational procedures in selected team sports.

176. Individual Sports (Men) (3) I, II

Seven hours.

Competency development in archery, badminton, golf, handball, and tennis. Emphasis on skills, strategy, tactics, rules, officiating, facilities, and organizational procedures in individual sports.

177. Physical Fitness (Men) (1) I, II

One lecture and two hours of laboratory.

Prerequisite: A conditioning course in the required program, or demonstrated competency.

Skills, movements, facilities, and organizational procedures in physical fitness programs. History and current role in the curricula.

178. Workshop in Physical Education (1-2)

Methods, techniques and development of skills in such areas as aquatics, combatives, gymnastics, rhythms and dance, and individual and team sports. Designed for secondary school administrators, teachers, coaches, recreation and youth leaders. May be repeated for a total of six units. May not be used as part of the physical education major for either degree or teaching credential.

179. Supervised Field Experience (1-3) I, II

Prerequisites: Senior standing and consent of the department chairman.

Supervised practical experience in physical education.

181. History and Philosophy of Dance (2) II

(Offered in alternate years)

The cultural background of all forms of dance in various civilizations with emphasis on the relationship of the social structure to the existing dance forms.

182A. Dance Composition (Preclassic Forms) (3) I

(Offered in alternate years)

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 54 and 82.

Compositions based on a study of preclassic dance forms as a contribution to form in contemporary dance. Study of the music of the period. Critical evaluation of group and individual compositions.

182B. Dance Composition (Modern Forms) (3) II

(Offered in alternate years)

Two lectures, three hours of laboratory.

Prerequisites: Physical Education 54 and 82.

Compositions related to contemporary art forms emphasizing the interaction of form and content in the creative idea. The temporal, spatial, dynamic, and dramatic elements of choreography.

183. Dance Production (3) II

Lecture-demonstration, recital, and concert forms of dance programs. Presentation and staging of original solo and group compositions.

184. Workshop in Dance (1-2) I, II

Choreographic techniques and skills with visiting master teachers; written report or project. May be repeated to a total of four units.

200. Seminar (3)**201. Curriculum in Physical Education (3)****202. Administration of Physical Education in the Secondary Schools (3)****203. History of Physical Education (3)****204. Problems in Recreation (3)****205. Current Trends and Issues in Physical Education (3)****206. Seminar in Competitive Athletics (3)****207. Advanced Kinesiology and Biomechanics (3)****208. Advanced Physiology of Exercise (3)****209. Advanced Adapted Activities (3)****210. Seminar in Facilities for Physical Education (3)****211. Advanced Evaluation in Physical Education (3)****213. Problems in Physical Education (3)****214. Seminar in Dance Programs (3)****215. Philosophical Foundations for Physical Education (3) I****220. Principles of Neuromuscular Tension (3)****221. Exercise Electrocardiography (3) I, II****223. Advanced Exercise Physiology Laboratory (3)****227. Fitness of Adults (3) I, II****261. Seminar in Motor Learning and Motor Performance (3)****291. Research Techniques (3)****295. Seminar in Physical Education (3)****298. Special Study (1-3)****299. Thesis (3)**

Physical Science

In the College of Sciences

Faculty

Emeritus: Watson

Professors: Dessel (Chairman), Merzbacher, Stewart, P.

Associate Professor: Shull

Assistant Professors: Anderson, L., Ingmanson, Metzger, Shideler, Springer, Thompson, Wallace

Offered by the Department

Master of Arts in physical sciences for teaching.

Teaching major in the physical sciences, with specialization in both elementary and secondary teaching. See "School of Education" in the catalog section Professional Schools: Courses and Curricula. See "School of Education" also for description of an interdepartmental major in physical sciences.

Minor in physical science.

Minor

The minor consists of 15 units, including Physical Science 1, 2, 3, 4, and 130 or 150; three additional upper division units are to be chosen with guidance from the departmental adviser.

1. Principles of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 5.

The nature of the physical universe with emphasis on the whole field of physical science rather than on its separate divisions. May be followed by or, preferably, taken with Physical Science 3 for laboratory credit in natural science.

2. Principles of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 5.

A continuation of Physical Science 1, which course is recommended but not a required prerequisite. May be followed by or, preferably, taken with Physical Science 4 for laboratory credit in natural science.

3. Experimental Methods in Physical Science (1) I, II

Three hours of laboratory.

Prerequisite: Credit for or concurrent registration in Physical Science 1.

Methods in physical science as illustrated by the use of significant examples from the various disciplines. The technique of observation, measurement, and discovery of relationships. Fulfills the general education laboratory requirement in the natural science area.

4. Experimental Methods in Physical Science (1) I, II

Three hours of laboratory.

Prerequisite: Credit for or concurrent registration in Physical Science 2.

A continuation of Physical Science 3. Fulfills the general education laboratory requirement in the natural science area.

5. Fundamentals of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 1.

Topics selected from Physical Science 1 and 2 to give a single course for the benefit of those students intending to take only one semester of physical science.

110. Physical Oceanography (3) I, II

Prerequisite: Physical Science 1.

Physical aspects of tides, waves, and currents.

120. Physical Science for Elementary Teachers (3) I, II, S

An integrated study of the physical sciences for teachers in order to provide a broad background of information, a consideration of current developments, and an opportunity for individualized work. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

130. Modern Physical Science (3) I, II

Recent and current developments in the physical sciences. Discussions concerning such phenomena as radioactivity, cosmic rays, nuclear energy, tracer techniques, radio telescoping, supergalaxies. Not open for credit to physics majors.

135A-135B. IPS Physical Science (3-3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Introductory course work in astronomy, geology, physical science or physics, and chemistry. Physical Science 135A is prerequisite to 135B.

Principles of physical science as presented in national curriculum study courses, particularly the IPS program of the Physical Science Study Committee.

140S. Contemporary Problems in Physical Science (1) S

A series of six weekly lectures on varied aspects of physical science. Reading and reports required of students enrolled for credit. May be repeated to a total of three units. These lectures are open to the public.

141. Electronics for Scientists (3) I, II, S

Two lectures and three hours of laboratory.

Primarily for science majors.

Electronic instrumentation used in the sciences; uses and limitations.

142. History of Science I (3) I, II

Prerequisites: completion of minimum general education requirements in science and six units of history.

The growth and development of science from antiquity to the 15th century. Emphasis on man's cognitive reactions to his environment through the coalescence of the occult arts, empirical practices, and rational thought associated with early scientific theory.

143. History of Science II (3) I, II

Prerequisite: Physical Science 142.

The major developments during the 16th through 19th centuries: the scientific revolution, the rise of empiricism, the emerging role of scientific societies. Histories of particular theories in both the life sciences and physical sciences.

150. Readings in Physical Science (3) I

Reading of selected materials with informal class discussion of topics. Emphasis on the historical background, the philosophical implications, and the impact of science on thought and culture.

160. The Development of Scientific Thought (3) I, II

Prerequisites: Six units from astronomy, chemistry, geology, physical science, or physics; and Mathematics 21 or equivalent.

Basic scientific concepts and their historical development with emphasis on the problem of theory construction. The relationship between disciplined imagination and observational fact, as illustrated by selected case histories. Limitations of scientific inquiry.

169. Interpretation of Quantum Mechanics (3) I, II

Identity, causality, questions of reality; the uncertainty principle. Especially intended for upper division students in the humanities who are curious about modern science.

196. Advanced Physical Science (1-3) I, II

Prerequisite: Consent of instructor.

Selected topics in classical and modern physical science. May be repeated for additional credit with new subject matter for a total of six units.

200. Seminar (2 or 3)**298. Special Study (1-3)****299. Thesis or Project (3)**

Physics

In the College of Sciences

Faculty

Emeritus: Terhune

Professors: Clark, O., Garrison, J., Moe, C., Morris, R., Skolil, Smith, Louis, Snodgrass, Teasdale, Templin (Chairman), Wolter

Associate Professors: Cottrell, D., Nichols, P. F., Piserchio, Reh fuss, Wolf, F.

Assistant Professors: Craig, R., Lilly, Roeder, Sarfatt

Offered by the Department

Master of Arts in physics.

Master of Science in physics.

Major in physics with the A.B. in liberal arts and sciences.

Major in physics with the B.S. in applied arts and sciences.

Major in chemical physics with the B.S. in applied arts and sciences.

Teaching major in physics with specialization in both elementary and secondary teaching.

Minor in physics.

Teaching minor in physics with specialization in both elementary and secondary teaching.

Physics Major

With the A.B. in Liberal Arts and Sciences

To meet the foreign language requirement for graduation, students should choose French, German, or Russian.

A minor in mathematics is required. It should include Mathematics 50, 51, 52, 118A-118B, and three units from Mathematics 121A, 150A, or 175. Mathematics 104 is acceptable for students preparing for elementary or secondary teaching. Students planning graduate work in physics should take additional mathematics beyond these listed.

Preparation for the major. Chemistry 1A-1B or 10A-10B; Physics 4A-4B-4C or 50-50B, and 73. (25 units.)

Major. Twenty-four upper division units in physics to include Physics 100A-100B, 102A-102B, 120A-120B, and 170. The students should choose the remaining units with the guidance of the departmental adviser. For preparation for graduate work in physics, the student should choose from Physics 106, 114, 151, 175, 180, 186, 190, 196, 198A, and 198B.

Physics Major

With the B.S. in Applied Arts and Sciences

Preparation for the major. Chemistry 1A-1B or 10A-10B; Mathematics 50, 51, and 52; Physics 4A-4B-4C or 50A-50B, and 73.

Major. Thirty-six upper division units in physics and mathematics to include Mathematics 118A-118B, Physics 100A-100B, 102A-102B, 120A-120B, 170, and 198A-198B. Courses are to be selected in consultation with the departmental adviser. Concentrations in the areas of applied physics, physical electronics, nuclear physics, optics, and teacher education are available in this degree.

Chemical Physics Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Chemistry 1A-1B or 10A-10B, 5, and 12; Mathematics 50, 51, and 52; Physics 4A-4B-4C or 50A-50B (43 units).

Major. Thirty-nine upper division units to include Chemistry 110A-110B, 112, and 127A; Chemistry 111 or 155; Mathematics 118A or 118B; Physics 100A-100B, 102A-102B, and 190; Physics 120A or 120B.

Physics Major

For the Standard Teaching Credential

The major in physics for elementary or secondary teaching is the same as the major for the A.B. in liberal arts and sciences or for the B.S. in applied arts and sciences, except that for secondary teaching the student must take six units of physics in addition in his postgraduate year. All courses in the teaching major must be approved by the adviser in physics for teaching programs.

Physics Minor

The minor consists of 15 units in physics, six of which must be upper division.

Physics Minor

For the Standard Teaching Credential

The minor in physics for elementary or secondary teaching consists of 20 units in physics, six of which must be upper division. However, if the major for secondary teaching is not an academic major, 12 upper division units in physics must be taken.

Maximum credit 12 units for any combination of Physics 1A-1B, 2A-2B, 3A-3B, 5B, and 50A-50B.

1A-1B. Elementary Physics (5-5) I, II

Four lectures and three hours of laboratory.

Prerequisites: Two years of high school mathematics. Physics 1A is prerequisite to 1B. Not open to students who have had high school physics.

This course is for students in those liberal arts and preprofessional courses not requiring physics with calculus. Physics 1A is not open to students with credit in 2A; 1B not open to students with credit in 2B.

2A-2B. General Physics (3-3) I, II

Prerequisites: Completion of high school physics. Physics 2A is prerequisite to 2B. Recommended: Concurrent registration in Physics 2A and 3A and in Physics 2B and 3B.

This course is for students in those liberal arts and preprofessional courses not requiring physics with calculus. Physics 2A is not open to students with credit in 1A; 2B not open to students with credit in 1B.

3A-3B. Physical Measurements (1-1) I, II

Three hours of laboratory.

Prerequisite for 3A: Credit or concurrent registration in Physics 2A.

Prerequisite for 3B: Physics 3A and credit or concurrent registration in Physics 2B.

A laboratory course to accompany Physics 2A-2B. 3A: properties of matter, mechanics, heat and sound. 3B: electricity, magnetism, and light.

4A-4B-4C. Principles of Physics (4-4-4) I, II

Three hours of lecture and three hours of laboratory.

Prerequisite for 4A: Completion of high school physics or equivalent, and credit or concurrent registration in Mathematics 50.

Prerequisites for 4B: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 51.

Prerequisites for 4C: Physics 4B with a grade of C or better and credit or concurrent registration in Mathematics 52.

Certain students may, with consent of the Department, substitute credit in Mathematics 22 for the indicated mathematics courses.

This course is designed to give a thorough understanding of the fundamental principles of physics in the areas of mechanics, wave motion, heat, electricity, and light.

5. Introductory Physics (4) I, II

Three lectures and three hours of laboratory.

Some of the more important phenomena and concepts in physics with practical illustrations and applications. Not open to students with credit for Physics 1A, 1B, 2A, 2B, 4A, 4B, or 4C.

50A-50B. Principles of Physics (6-6) I, II

Five lectures and discussions and three hours of laboratory.

Prerequisite for 50A: High school physics, or Physics 1A-1B or 2A-2B; credit or concurrent registration in Mathematics 51. Not open to students with credit in Physics 4A.

Prerequisite for 50B: Physics 50A with a grade of C or better, and credit or concurrent registration in Mathematics 52.

Mechanics, wave motion, heat, electricity, optics, and atomic and nuclear physics. The calculus will be used.

73. Introductory Electronics (3) I, II

Prerequisites: Physics 4B, 50B, or 1B; or 2B and 3B; a working knowledge of the calculus.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 103.

100A-100B. Classical Physics (3-3) I, II

Prerequisites: Physics 4C or 50B, and credit or concurrent registration in Mathematics 118A. Physics 100A is prerequisite to 100B.

Semester I: Newtonian mechanics and wave motion. Semester II: Electrostatics and magnetostatics.

102A-102B. Modern Physics (3-3) I, II

Prerequisite: Physics 4C or 50B. Physics 102A is prerequisite to 102B.

Semester I: atomic and molecular physics, solid state physics, atomic spectroscopy, and introductory quantum mechanics. Semester II: kinetic theory, classical and quantum statistics, and thermal radiation.

103. Basic Electronics (3) I, II

Prerequisites: Physics 4B or 50B or 1B, or 2B and 3B, and a working knowledge of the calculus.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 73.

106. Optics (3) II

Prerequisites: Physics 4C or 50B or 1B, or Physics 2B and 3B, and a working knowledge of the calculus.

Reflection, refraction, dispersion, interference, diffraction, double refraction and polarization, with applications to optical instruments, wave propagation, radiation, spectra and the nature of light.

107. Optical Design (3)

Prerequisite: Physics 4C or 50B.

Ray tracing, aberrations, matrix methods, optical instrumentation.

110. Electricity and Magnetism (3) I, II

Prerequisites: Physics 4C or 50B; and credit or concurrent registration in Mathematics 118A, and in Physics 73 or 103.

Analysis of direct and alternating current circuits using the operator "j" and circuit theorems; introduction to coupled circuits, resonance and transients. Electrostatics; dielectrics and conductors. Chemical, photo, and thermal effects. Electromagnetism, and magnetic properties.

111. Concepts in Modern Physics (3) I, II

Prerequisite: Physics 1B, 2B, or 5.

Modern developments in physics for non-physics majors, including relativity, introductory quantum theory, and atomic nuclear and solid state physics.

114. Acoustics (3) I

Prerequisites: Physics 73 and 100B.

Wave motion and its application to the production, transmission and reception of sound. Development of acoustic circuits using electro-acoustic analogs.

120A-120B. Advanced Physical Measurements (2-2) I, II

Six hours of laboratory.

Prerequisites: Physics 4C or 50B; and credit or concurrent registration in Physics 73 or Physics 103.

A year course stressing laboratory experiments and measurements chosen from all the major areas of physics.

121. Radiation Physics (3)

Two lectures and three hours of laboratory.

Prerequisites: Physics 1B or 2B, and 3B.

X-rays, radioactivity, interactions of radiations with matter, and methods of measurement. May not be used in the physics major.

122. Senior Physics Laboratory (2) I, II

Six hours of laboratory.

Prerequisite: Physics 120B.

Advanced experimental measurements in the fields of classical and modern physics, in one of the following areas: acoustics, nuclear physics, heat and thermodynamics, advanced electronics, electricity and magnetism, microwaves, solid state physics, and analog computers. Combinations of two areas in one semester may be taken with consent of the instructor. May be repeated with new material to a maximum of four units.

130. Physics for Elementary Teachers (3) I

Basic concepts, methods, and materials of physics for the elementary school. Topics in classical and modern physics. Open only to elementary teachers and elementary teacher candidates. Not open to students with credit in Physics 4A-4B-4C or 50A-50B.

133. Concepts of Physics (4) I

Three lectures and three hours of laboratory.

Prerequisites: Mathematics 51 or Mathematics 22, and Physics 1B or 2B and 3B with grades of C or better.

Unifying concepts of physics; conservation of momentum and energy, wave-particle models, conservative fields, relativity, and statistical physics.

135A-135B. PSSC Physics (3-3)

Two lectures and discussions and three hours of laboratory.

Prerequisites: Physics 1B or 2B, and 3B.

A new approach to the study of major concepts of physics. Designed for those who plan to teach science. The course is based on test and laboratory materials prepared by the Physical Science Study Committee.

148. Nuclear Physics Laboratory (3) II

One lecture and six hours of laboratory.

Prerequisite: Physics 120B.

Techniques and instrumentation for the detection, identification and measurement of the properties of nuclear radiations and particles, and their use in the study of nuclear reactions.

151. Nuclear Physics (3) I, II

Prerequisite: Physics 190.

Nuclear phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles.

155. Analog Computers (3) II

Prerequisites: Mathematics 118B; Physics 73 or 103.

Electronic integration and differentiation; solution of differential equations; multiplication, division and function generation; simulation of mechanical systems varying with time, solution of typical problems; auxiliary equipment, layout of large installations.

156. Digital Computers (3) I

Prerequisites: Mathematics 7 and 118B; Physics 73 or 103.

The binary number system; electronic and magnetic flip-flop circuits; memory devices; programming; complete computer systems. Auxiliary equipment for inserting information and reading out results rapidly. Typical applications and limitations.

160. Circuit Analysis (3) II

Prerequisite: Physics 73 or 103.

Filter design, transmission lines, and network analysis.

163. Electronics Laboratory (2) I

Six hours of laboratory.

Prerequisites: Physics 120B and credit or concurrent registration in Physics 173A.

Transistor characteristics, cathode ray oscillograph. One stage RC amplifier. One stage and multistage amplifiers including feedback. Equivalent circuits.

167A. Semiconductor Devices (3) I

Prerequisite: Physics 73 or 103.

Semiconductor physics, diode and transistor mechanisms, equivalent circuits and applications, thermal stability, switching theory and applications.

167B. Semiconductor Devices (3) II

Prerequisites: Physics 102A and 167A.

Field effect devices, semiconductor lasers and photo detectors, four layer devices including SCR's, tunnel diodes, varactors and other microwave devices, thermoelectricity, Hall effect.

170. Electromagnetic Theory (3) I, II

Prerequisites: Mathematics 118B and Physics 100B and 102B.

Electrostatics and magnetostatics treated by vector methods; Maxwell's equations, electromagnetic induction, radiation and wave propagation.

173A. Physical Electronics (3) I

Prerequisites: Mathematics 118B and Physics 100B and 102B.

Conductors, Fermi model, thermionic, photoelectric, and field emission, contact potentials, space charge. Semiconductors, linear equivalent, circuits, elements of frequency and time domain analysis, linear feedback circuits.

173B. Physical Electronics (3) II

Prerequisites: Physics 160 and 173A, each with a minimum grade of C and credit or concurrent registration in Physics 163.

Field approach to transmission lines, coaxial cables, wave guides, resonant cavities, stub matching, radiation and antenna phenomena, interaction of fields and electronic beams and power extraction from fields.

175. Advanced Mechanics (3) I

Prerequisites: Mathematics 118B and Physics 100B.

Special theory of relativity, generalized coordinates, Lagrangian and Hamiltonian formulations, normal coordinates, theory of vibrations, and introduction to continuum mechanics.

180. Solid State Physics (3) II

Prerequisites: Mathematics 118B and Physics 100B and 102B.

Elastic, thermal, electric, magnetic and optical properties of solids. Introduction to the energy band theory of solids, with applications to dielectrics, semi-conductors, and metals.

186. Modern Optics (3) I

Prerequisites: Mathematics 118B, Physics 100B and 102B.

Optics of solids, coherence and partial coherence theory, Fourier optics, holography.

187. Modern Optics Laboratory (2) I, II

Six hours of laboratory.

Prerequisite: Credit or concurrent registration in Physics 186.

Experiments in various fields of modern optics such as holography, Fourier spectroscopy, spatial filtering, non-linear effects, and coherence measurements.

190. Introductory Quantum Mechanics (3) I, II

Prerequisites: Mathematics 118B, Physics 100B and 102B.

The physical basis of the quantum theory and its mathematical formulation in terms of Schrodinger's wave equation.

196. Advanced Physics (2 or 3)

Prerequisite: Consent of instructor.

Selected topics in classical and modern physics. May be repeated with the approval of the instructor for a total of six units.

198A. Senior Research (1) I, II

One discussion period and two additional hours per week to be arranged.

Prerequisite: Senior standing in physics and an acceptable plan for graduation within one year.

Selection and design of individual research project. Oral and written progress reports.

198B. Senior Research (2) I, II

Two discussion periods and four additional hours per week to be arranged.

Prerequisite: Physics 198A with grade of C or better.

Laboratory work, progress reports, oral and written final reports.

200. Seminar (2 or 3)**205. Theoretical Mechanics (3)****210A-210B. Mathematics of Physics (3-3)**

- 214. Advanced Acoustics (2)**
- 219. Statistical Mechanics (3)**
- 220. Radiation Physics (2)**
- 221. Radiological Physics (2)**
- 222. Health Physics (2)**
- 248. Advanced Nuclear Physics Laboratory (3)**
- 251. Nuclear Physics (3)**
- 260. Advanced Electronics (3)**
- 270A-270B. Electromagnetic Theory (3-3)**
- 275A-275B. Quantum Mechanics (3-3)**
- 280. Theory of the Solid State (3)**
- 286. Advanced Optics (3)**
- 297. Research (1-3)**
- 298. Special Study (1-3)**
- 299. Thesis (3)**

Political Science

In the College of Arts and Letters

Faculty

Professors: Andrain, Gripp (Chairman), Feierabend, I., Generales, Janssen, Joy, Kahng, Padgett

Associate Professors: Crain, Hobbs, Johns, D., Miles, Nesvold, Schultze

Assistant Professors: Anderson, D. G., Byrne, Conniff, Cutter, Funston, Guertner, Jutkowitz, Keiser, Lewin, Moe, R., Pedersen, Pollock, Terrell

Visiting Lecturer: Soule

Offered by the Department

Master of Arts in political science.

Major in political science with the A.B. degree in liberal arts and sciences.

Minor in political science.

Teaching minor in political science with specialization in secondary teaching.

Major with the A.B. in Liberal Arts and Sciences

A minor is required, chosen with the guidance of the chairman of Political Science.

Preparation for the major. Political Science 1, 2, 3, and three units of statistics.

Major. Twenty-four upper division units, to include Political Science 128 or 197 and 21 units distributed among four of the six groups of courses listed. At least one course must be in political theory.

Minor

The minor consists of 15 units of political science, to include Political Science 1, and 2 or 3, and nine upper division units.

Minor for the Standard Teaching Credential

The minor for secondary teaching consists of 20 units in political science, 14 of which must be in upper division courses chosen with the guidance of the departmental adviser.

1. Introduction to Political Science (3) I, II

Basic concepts of political science including an introduction to the scope of the discipline and representative methods of acquiring political knowledge. Illustrative materials drawn primarily from the American experience.

Completion of both Political Science 1 and 2 will meet all requirements in American Institutions.

2. Introduction to American Government and Politics (3) I, II

The origin and development, structure and operation of the government of the United States, national, state, and local.

Completion of both Political Science 1 and 2 will meet all requirements in American Institutions. Political Science 2 will meet the requirements in U.S. Constitution and California government.

3. Introduction to Comparative Government (3) I, II

Analytical models and techniques for examination of the problems of decision-making and control in various political systems. Emphasis on patterns of political action in various cultural contexts.

Research Methods (Group I)

100A-100B. Research Methods in Political Science (3-3)

Prerequisite: Political Science 1, 2, and a three unit course in statistics. Political Science 100A is a prerequisite to Political Science 100B.

The research process, from research design through data processing, analysis and interpretation. Problems of application to election statistics, census data, roll-call records, sample survey data, and biographical information.

Political Theory (Group II)

105. American Political Thought (3) I, II

The development of American ideas concerning political authority from the period of colonial foundation to the present time.

111A-111B. Theory of the State (3-3)

Prerequisite: Political Science 111A is prerequisite to 111B.

The nature of the State, its organization and activities, and its relation to the individual and other states.

112. Modern Political Thought (3) I, II

Concepts concerning the nature of the state from Burke to the present.

113. The Theory of Political Inquiry (3)

Prerequisite: Political Science 1, 2, and 3.

Philosophical bases of science with reference to political science. Concepts, concept formation, theory building, and verification.

114. Problems in Political Theory (3)

Prerequisite: Six units of upper division political theory.

Research methods in political theory; intensive development of selected issues.

Politics (Group III)

115. American Institutions (3) I, II

The principles of the Constitution of the United States of America, and a survey of the political and social institutions which have developed under the Constitution. Meets the graduation requirement in the United States Constitution and California state and local government. When taken with Political Science 117 or 118, or Public Administration 142 or 143 will also meet requirements in American history, institutions, and ideals. Not open to students with credit in Political Science 2.

116. American National Government (3) I, II

Prerequisite: Political Science 2 or 115, or History 17A and 17B.

An intensive examination of the primary institutions of the national government. Critical analysis of changing aspects of traditional relationships among the institutions of president, congress, and the judiciary.

117. State and Local Government (3)

A study of public policy-making within the context of statewide politics, state-federal and state-local relations, including both official and unofficial institutions. Emphasis on California. Meets the graduation requirement in California Government. (Formerly numbered and entitled: Political Science 142, State Government; and Political Science 143, Municipal and County Government.)

118. Urban Politics (3)

Prerequisite: Political Science 1 or 2.

The processes by which social conflicts in American urban areas are represented and regulated. Urban political culture; ecology; group development and activity; power structures; and reform movements are surveyed. The character of the urban political "problem" and proposed solutions are evaluated. (Formerly numbered and entitled: Political Science 148, Government and Politics of Metropolitan Areas.)

119. Community Political Behavior (3)

Prerequisite: Political Science 1 or 2.

The studies of structure of community power are summarized and critically evaluated. The issues of community conflict are treated both by case study and comparative methods. Examples are drawn primarily from American-urban experience. (Formerly numbered Political Science 150.)

120. Political Parties (3) I, II

A critical analysis of the political party as a part of the process of government; party organization and activities; nominating and campaign methods; theories and functions of the party system; party responsibility. The function of the two-party system in American government.

121. Political Behavior (3)

Prerequisite: Political Science 1.

Social and attitudinal variables in political behavior. Quantitative research data as used in electoral studies. (Formerly numbered Political Science 124.)

122. Political Communication (3)

Prerequisites: Political Science 121.

Communication as a political process; the effects of political communications on individuals and groups.

123-S. Contemporary American Politics (3) S

A consideration of a selected group of current major political problems in terms of their possible future implications and of their relationship to established American democratic principles and ideals.

124. The American Presidency (3) I, II

Prerequisites: Political Science 1 and 2.

Analysis of principal institutions, functions, and problems of the presidency and federal executive branch. Attention given to presidential leadership, staffing, executive-legislative relations, and policy formation.

125. The Legislative Process (3) I, II

A detailed analysis of legislatures. Special attention will be devoted to the impact of dynamic factors on formal procedures.

126. Political Groups and Movements (3) I, II

Prerequisite: Political Science 1 or 2.

Pressure group activity, lobbies, mass movements; factors which explain origins and motivations of group behavior; votes, money, information, protest as political resources; theories of pluralism, power elite, and mass society; class and ethnic politics.

128. Internship in Politics (2-6) I, II, S

Prerequisites: Political Science 120 and consent of instructor.

Students will be assigned selectively to functional areas of politics, such as political party headquarters, elective public offices and non-partisan political groups for work under joint supervision of activity heads and the course instructor. Participation will include project and internship conferences.

129. The Politics of Bureaucracy (3) I, II

Prerequisites: Political Science 1 and 2.

An analysis of the bureaucracy as an actor in the political system.

130. Government and Public Policy (3)

Prerequisite: Political Science 116 or 117.

Theory and practice of process of formulating public policy, roles of administrators, legislators, courts, interest groups, and political parties; public agencies and public interest, case studies in formulating public policies. (Formerly numbered Political Science 147.)

132. Minority Political Thought and Politics in the United States (3) I, II

Political attitudes, behavior, and thought of selected minority groups.

*Public Law (Group IV)***135. The Supreme Court and Contemporary Issues (3)**

Recent decisions of the Supreme Court of the United States and their relationship to contemporary political and social issues. Not open to students with credit in Political Science 139A or 139B.

138. Law and the Political System (3)

Forces influencing the making of law; relationship between social and legal change; nature and limits of the judicial function.

139A-139B. American Constitutional Law (3-3)

Prerequisite: Political Science 139A is prerequisite to 139B.

Principles of American Constitutional law. Includes judicial review, the federal system, the separation of powers, the nature of selected Congressional powers, and the liberties protected by the constitution against national and state action. Meets the graduation requirement in the United States Constitution.

*International Relations (Group V)***165. Dynamics of Modern International Crises (3) I, II**

Prerequisite: Consent of instructor.

The determination and analysis of facts surrounding international crises since World War II; the evaluation of these crises and their effects upon external policies of the United States and the operations of the United Nations.

168-5. Institute on World Affairs (3) 5

Contemporary problems in international relations. May be repeated once for course credit with permission of the instructor.

170A-170B. International Relations (3-3)

A historical and analytical consideration of the basic factors—historic, geographic, economic, ideologic, and strategic—which underlie and condition the modern conflict between the “sovereign state” and the “community of nations.” Fall semester: Origins and development through the nineteenth century. Spring semester: Twentieth century experimentation and conflict.

171. The Conduct of American Foreign Relations (3) I

The legal, administrative, and political organizations by which American foreign policies are formulated and implemented.

172. International Organization (3) I

The organization by which the international community seeks to provide for the exercise of legislative, administrative and judicial functions on the international level: diplomatic and consular corps; conferences; administration through commissions and unions; amicable procedures for settlement of disputes; the League of Nations-United Nations experiment.

173. Principles of International Law (3)

The function of law in the international community. The historical development of the ideas and rules of international law and their place in the modern diplomatic and legal structure.

174. National Security Policy (3)

Objectives, instruments, and consequences of national security policy.

175. International Relations of the Latin American States (3)

The foreign policies of the Latin American states; the organization of American states; relationships with the United Nations and with the United States.

176. International Relations of the Developing Nations (3)

Prerequisite: Six units of political science.

Cooperation and conflict between the developing nations and relations of such nations with the developed countries.

177. Comparative Foreign Policies (3)

Prerequisite: Six units of political science.

Comparison of foreign policies of nations in various regional, socio-economic, and ideological areas.

*Comparative Government (Group VI)***180. Government of England (3) II**

The structure and functioning of the English parliamentary system with emphasis upon present day political principles and parties.

181. Government of the Soviet Union (3) I

Theory and practice of government in the Soviet Union, with some attention to foreign affairs.

182. Political Violence (3)

Prerequisite: Political Science 1, 2, or 3.

Underlying conditions, expressions, and consequences of violence within political systems.

183. Governments and Politics of South and Southeast Asia (3)

The internal political systems and foreign policies of India, Pakistan, Thailand, and Indochinese area, Indonesia, and the Philippines.

184. The Mexican Political System (3)

Prerequisite: Political Science 1 or 3.

Principal factors in Mexican governmental decision-making. Ideology, political groups, tactics of leaders and governmental structure.

185. Governments of Continental Europe (3) I, II

The political systems of the countries of western continental Europe.

186. Comparative Communist Governments (3) I, II

The interrelations between the theory and practice of modern communism as found in representative communist systems.

187. Governments and Politics of the Far East (3)

The internal political structure and foreign policies of China, Japan, and Korea.

188. Governments and Politics of the African States (3) I

Domestic and international politics of specific African states.

189. Government and Politics of the Middle East (3)

The governmental and political structures of representative states in the Middle East, including Turkey, Israel, and the Arab states.

190. Comparative Political Systems (3) I, II

Prerequisite: Political Science 3.

An examination of selected political and governmental systems for purposes of comparative study and analysis to determine similarities, differences, and general patterns and universals among political systems.

191. Governments and Politics of the Developing Areas (3) I, II

Prerequisite: Political Science 1 or 3.

Internal political systems, governmental structures, and the foreign policies of developing nations.

192. Political Change in Contemporary Africa (3) II

General pattern of nationalism in Africa south of the Sahara. Theories of social change and general features of contemporary African political development.

193. Proseminar in Cross-National Studies (3)

Prerequisites: Political Science 3 and Political Science 100A.

Cross-national analysis of institutional norms, attitudes, and behavior in relation to government; factors which determine patterns and styles of political participation in contemporary societies.

194. Political Change in Latin America (3)

Prerequisite: Political Science 1 or 3.

General pattern of politics and political development in Latin America with an emphasis on those features which condition domestic and foreign policy-making.

195. Political Systems of Latin America (3)

Prerequisite: Political Science 194.

Domestic and international politics of selected Latin American states.

196-S. Institute of Public Affairs (1-3) 5

Study of selected phases of American or Comparative Government. May be repeated to a maximum of six units of course credit with new content and consent of instructor.

197. Investigation and Report (3) I, II

Analysis of special topics. Admission by permission of instructor.

200. Seminar in the Scope and Method of Political Science (3)**210. Seminar in Political Theory (3)****215. Seminar in American National Government (3)****220. Seminar in Politics (3)****221. Seminar in Political Participation (3)****225. Seminar in the Legislative Process (3)****226. Seminar in Political Psychology (3)****230. Seminar in Public Law (3)****250. Seminar in Local Government (3)****255. Seminar in Metropolitan Government and Politics (3)****270. Seminar in International Relations (3)****272. Seminar in International Organization (3)****275. Seminar in Theories of International Relations (3)****280. Seminar in General Comparative Political Systems (3)****281. Seminar in Western Political Systems (3)****282. Seminar in the Political Systems of the Developing Nations (3)****283. Seminar in Latin American Political Systems (3)****284. Seminar in Communist Political Systems (3)****290. Bibliography (1)****291. Problem Analysis (3)****297. Research in Political Science (3)****298. Special Study (1-3)****299. Thesis (3)**

Portuguese

See Spanish and Portuguese.

Psychology

In the College of Sciences

Faculty

Emeritus: Carlson, Kidwell, McCollom, Steinmetz, Treat

Professors: Alf, Dicken, Feierabend, R., Gallo, Grossberg, Harrison, R., Hillix, Hunrichs, Kaplan, Karen, Kass, Kinnon, Leukel, O'Day, Peiffer, Penn (Chairman), Radlow, Rumbaugh, Stevens, Turner, M. B., Voeks

Associate Professors: Gilbreath, Harari, Koppman, Leckart, Levine, Linton, Lynn, McDonald, R., Parker, Psomas, Rodin, Sand, Sattler, Schulte, Sheposh, Smith, J. R.

Assistant Professors: Bowen, Bryson, Defran, Franzini, Graf, Gunderson, Hornbeck, Hufford, Jacobson, McCordick, Mollenauer, Ohnesorge, Plotnik, Pollock, Richards, Schulman, Tilker, Yaremko

Offered by the Department

Master of Arts degree in psychology; and a Master of Science degree in psychology.

Major in psychology with the A.B. degree in liberal arts and sciences.

Major in psychology with the A.B. degree in applied arts and sciences for students admitted to Secondary Teacher Education.

Teaching major in psychology with specialization in secondary teaching.

Minor in psychology.

Teaching minor in psychology with specialization in both elementary and secondary teaching.

Major

With the A.B. Degree in Liberal Arts and Sciences

Two plans are provided for the major in psychology: **Plan A** for those students who wish to extend their liberal arts education in the field of psychology; and **Plan B** for those students expecting to pursue the study of psychology beyond the A.B. degree.

Plan A

Plan A is for a nonprofessional major in psychology and is designed to provide the student with a greater understanding of human behavior as the emphasis in his liberal arts education. The recommended pattern of courses for this program is not designed to facilitate graduate and professional study in psychology.

Preparation for the major. Psychology 40 and 50. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 106, 131, 145, and 150. It is expected that each student under Plan A will select, with the assistance of his adviser, a pattern of courses in line with his particular objectives in pursuing Plan A.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Biology 159, 160; Economics 102; and courses in home economics.

Plan B

The purpose of Plan B is to facilitate the specific preparation of those students who wish to pursue graduate and professional preparation in clinical, industrial and personnel, social, and theoretical-experimental psychology.

Preparation for the major. Psychology 40, 50, and 70. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 105, 110, 178, and one of the following: 111, 112, 113, 114, 115, 116, 117, or 118; and ten units selected from courses in consultation with the departmental adviser.

With the A.B. in Applied Arts and Sciences for Secondary Teaching

Preparation for the major. Psychology 40, 50, and 70. Recommended: 15 units in anthropology, biology, philosophy, sociology, and zoology.

Major. Psychology 105, 110, 131, 151, and twelve additional units in psychology selected with approval of the departmental adviser.

For the Standard Teaching Credential

The major in psychology for secondary teaching is the same as the undergraduate major for the A.B. degree in applied arts and sciences described above.

Postgraduate Year. Six units of postgraduate courses acceptable toward the credential.

Minor

The minor consists of 15 units in psychology, nine of which must be upper division.

Minor for the Standard Teaching Credential

The minor for elementary or secondary teaching consists of 21 units in psychology, to include Psychology 1, 106, 131, and 145.

1. General (3) I, II

Facts, principles, and concepts which are basic to understanding human behavior.

2. Studies in General Psychology (3)

Prerequisite: Psychology 1.

Readings in great experiments from various fields of psychology to illustrate scientific method applied to human behavior. Lectures, demonstrations, and participation in classroom experiments to emphasize scientific method as a way of thinking. Designed as a general course for non-majors.

3. Psychology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Psychology 1.

Application of experimental methods to psychological problems. Includes design and execution of experiments.

11. Applied Psychology (3) I, II

Prerequisite: Psychology 1.

The application of the basic principles of psychology to business, education, industry, government, law, medicine and related fields.

12. Psychology of Individual Adjustment (3) I, II

Prerequisite: Psychology 1.

An examination and interpretation of the factors which go into the making of the person as he adapts himself to the social world about him. The development of the normal personality.

40. Principles of Learning and Perception (3) I, II

Prerequisite: Psychology 1.

The nature of psychological inquiry. Emphasis on principles and basic experimental data of learning and perception.

50. Introduction to Physiological Psychology (3) I, II

Prerequisite: Psychology 1.

Physiological mechanisms underlying the psychological phenomena of sensation, perception, emotion, motivation, learning and psychosomatic disorders.

70. Statistical Methods in Psychology (3) I, II

Prerequisites: Psychology 1 and Mathematics 3 or qualification on the Mathematics Placement Examination.

Quantitative methods in psychology. Measures of central tendency and variability, graphic methods and percentiles, linear correlation, applications of the normal probability curve, chi-square, and an introduction to statistical inference. Not open to students with credit for, or concurrent enrollment in, another statistics course.

100. Selected Topics in Psychology (1-3)

Prerequisite: Six units of psychology.

An intensive study in specific areas of psychology, topic to be announced in the class schedule.

105. Psychological Testing (3) I, II

Prerequisite: One of the following courses: Psychology 70, Education 120, 151, or 152, or a semester of statistical methods in any other department.

The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

106. Developmental Psychology (3) I, II

Prerequisite: Psychology 1.

The psychological development of the normal individual from conception through childhood, adolescence, maturity, and old age. Stress is laid upon the interdependence of the various periods of the individual's life.

107. Psychology of Later Maturity (3) II

Prerequisite: Psychology 1.

The psychological, physiological, and sociological factors influencing behavior in the later years of life.

108. Advanced Developmental Psychology (3) I, II

Prerequisite: Psychology 106.

Selected topics in the areas of infancy, childhood and adolescence.

109. Mental Deficiency (3) I, II

Prerequisite: One of the following: Psychology 106, Education 110, 112, 113, or equivalents.

The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective.

110. Introduction to Experimental Psychology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 40 and 70.

Understanding of experimental design, quantitative methods, and experimental reports as they are applied to all areas of psychology.

111. Experimental Psychology: Perception (4)

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of perception.

112. Experimental Psychology: Social (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of social psychology.

113. Experimental Psychology: Physiological (4)

Two lectures and six hours of laboratory.

Prerequisites: Psychology 50 or 142 or six units of biology; and Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of physiological psychology. Surgical and histological techniques necessary to research in brain mechanisms and behavior; includes basic electronics for biological scientists.

114. Experimental Psychology: Comparative (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of comparative psychology.

115. Experimental Psychology: Personality and Clinical (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 110 and 150.

Experimental and theoretical literature, assigned and original laboratory projects in the field of personality and clinical psychology.

116. Experimental Psychology: Learning (4)

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of learning.

117. Experimental Psychology: Primate Behavior (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original observational and experimental projects in the field of primate learning and behavior.

118. Experimental Psychology: Child Development (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 106 and 110.

Methods, techniques and principles used in the scientific study of child behavior.

120. Consumer Psychology (3) I, II

Prerequisite: Six units of psychology.

A review of the research literature and methods relevant to the individual as a consumer in our society. Attitudes, values, and decision making abilities of people when functioning as a consumer.

121. Personnel and Industrial Psychology (3) I, II

Prerequisite: Psychology 70 or statistics in another field.

Psychological principles applied to industrial problems of selection, placement, training, development, and motivation of employees.

122. Public Opinion Measurement (3) I

(Same course as Journalism 122)

The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

123. Organizational Psychology (3) I, II

Prerequisite: Six units of psychology.

The interplay of men and organizations. Psychological literature of the individual and his motivation to work, working in groups, industrial organizations, communications and conflict in industrial organizations.

124. Engineering Psychology (3) I, II

Prerequisite: Psychology 1.

Psychological problems of man-machine systems. Visual, auditory, and other sensory factors involved in the interrelations between man and machines. Survey of origin and basic data of engineering psychology.

125. Human Factors Psychology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 1 and consent of instructor.

Experimental techniques and procedures in the application of synthesis of behavioral criteria to the design, development, operation and maintenance of man-machine systems. Government and industry job requirements, routines and practices.

131. Psychology of Personality (3) I, II

Prerequisite: Six units of psychology.

The principles of personality and their application to problems of adaptation and mental hygiene.

133. Principles of Interviewing (3)

Prerequisite: Six units of psychology. Recommended: Psychology 12 or 131.

Psychological factors in interviewing; interviewing techniques. Supervised practice in interviewing for purposes of personnel appraisal and development.

141. Neural Bases of Behavior (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 50 or six units in the biological sciences.

Elements of neurology and psychobiology with emphasis on sensory, central, and motor mechanisms.

142. Physiological Psychology (3) I, II

Prerequisites: Psychology 40 and 50 and three units of biology; or nine units of biology.

An evolutionary approach to the development of complex behavior in higher organisms and man. The neurophysiology of emotion, sleep, bodily needs, instinctive patterns of behavior, and of learning; brain and behavior disorders.

145. Social Psychology (3) I, II

Prerequisite: Psychology 1.

The major problems and findings concerning group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Sociology 140.

146. Advanced Topics in Social Psychology (3)

Prerequisites: Psychology 40 and 145.

An intensive exploration of selected areas within social psychology. Maximum credit six units with the approval of the instructor.

147. Psychology of Contemporary Social Problems (3)

Prerequisite: Psychology 1.

Discussion of social issues and problems of importance to the contemporary world, from the point of view of psychological theory, method and knowledge.

150. Abnormal Psychology (3) I, II

Prerequisite: Six units of psychology.

The causes, symptoms, and modification of behavior disorders with emphasis on neurosis, psychosis, and personality disorder.

151. Introduction to Clinical Psychology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 105 and 150.

History and current status of the profession; professional ethics and interprofessional concerns; clinical assessment and prediction; theory and practice of behavior change.

152. Introduction to Methods of Counseling (3) I, II

Two lectures and two hours of activity periods.

Prerequisites: Senior standing in psychology or presocial work, and consent of instructor.

An introduction to problems and methods of counseling and adjustment. The utilization of psychological principles and techniques in dealing with various types of guidance situations. Not open to students with credit in Psychology 233 or Education 233.

153. Advanced Abnormal Psychology (3)

Prerequisite: Psychology 150.

An intensive study and evaluation of research methodology and current literature concerning the neuroses, psychoses, aphasia, ataxia, mental defect, and psychopharmacology.

167A-167B. Statistical Methods and Experimental Psychology (4-4)

Two lectures and six hours of laboratory.

Prerequisites: Psychology 40 and mathematical aptitude examination. (See Honors Program.)

Integrated approach to the understanding of statistical methods, experimental design and the writing of experimental reports as applied to all areas of psychology. Not open to students with credit in Psychology 70 and 110.

170. Advanced Statistics (3) I, II

Prerequisite: Psychology 70.

A further study of quantitative methods in psychology with particular emphasis on methods of correlation, chi-square, and contingency, and an introduction to the analysis of variance.

171. Intermediate Correlational Analysis (3)

Prerequisite: Psychology 70.

Quantitative methods in psychology with emphasis on methods of correlation, multiple correlation, partial correlation, and factor analysis.

174. Theories of Perception (3) I, II

Prerequisite: Psychology 110.

Study of research and theory in the areas of sensation, perception, and attention.

175. Theories of Learning (3) I, II

Prerequisites: Psychology 1, 40, and 70.

The facts, principles, and major theories of learning.

176. Principles and Practice of Personnel Training (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Psychology 121, 175, and consent of instructor.

Techniques and apparatus appropriate for training of personnel. Supervised practice in analyzing training needs, designating required terminal behavior, devising a training technique, writing and validating a training aid.

177. History of Psychology (3) I, II

Limited to psychology majors with senior standing.

The historical background of modern psychology.

178. Theories of Personality (3) I, II

Prerequisites: Major in psychology and six upper division units in psychology. Representative personality theories and supporting evidence.

179. Philosophical Issues in Psychology (3) II

Prerequisite: Twelve units in psychology.

Modern empiricism and the philosophy of science as related to issues in contemporary psychology.

180-S. Contemporary Problems in Psychology (1) S

Lectures open to the public.

Enrollment for credit limited to upper division and graduate majors in psychology; or consent of instructor.

A series of six weekly lectures by visiting psychologists on subjects related to current research problems. Reading and reports required of students enrolled for credit.

197. Senior Project (1-3) I, II

Prerequisites: Twelve units in psychology and consent of instructor.

An individual investigation and report on a research project. Maximum credit six units.

200. Seminar (3)**201. Seminar (3)****202A-202B. Contemporary Psychology (3-3)****204. Psychological Assessment I (4)****205. Psychological Assessment II (4)****211. Behavior Disorders of Childhood and Adolescence (3)****212. Behavior Disorders of Adults (3)****219. Seminar in Personnel Psychology (3) Offered once a year****220. Seminar in Organizational Psychology (3)****221. Seminar in Problems in Social Psychology (3)****222. Seminar in Theoretical Psychology (3)****223. Experimental Design (3)****224. Advanced Experimental (3)****225. Principles of Test Construction (3)****226. Seminar in Political Psychology (3)****230. Seminar in Physiological Correlates of Behavior (3)****231. Seminar in Ethology and Comparative Psychology (3)****233. Counseling and Psychotherapy Laboratory (4)****270. Statistical Theory (3) I, II****275. Advanced Principles of Learning (3) I, II****277. Seminar in the History of Psychology (3) I, II****296. Directed Field Experience (1-3)****297. Research (1-3)****298. Special Study (1-3)****299. Thesis (3)**

Public Administration and Urban Studies

In the College of Professional Studies

Faculty

Professors: Bigger, Haak, Kitchen, Kochanski, Leiffer, Walker, D., Wilcox (Director)

Assistant Professors: Clapp, Closson, Gazell, Gitchoff, Hamilton, Walshok.

Lecturer: Erikson

Offered by Public Administration and Urban Studies

Master of City Planning.

Master of Public Administration.

Master of Science in criminal justice administration.

Major in criminal justice administration, with the B.S. in applied arts and sciences.

Major in public administration, with the A.B. in applied arts and sciences.

Criminal Justice Administration Major

With the B.S. Degree in Applied Arts and Sciences

Preparation for the major. Political Science 2, Sociology 1, and a lower division course in statistics. Students who plan to enter police work are strongly advised to take a minimum of 21 units of lower division course work in police science at an institution offering work in this field.

Major. A minimum of 36 upper division units to include Political Science 105, Public Administration 140, and 197 or 198; six units selected from Public Administration 116, Sociology 110, 113, 114, 123, 125, 140, 157; and twenty-one additional units selected from these sociology courses, or from Political Science 122, Public Administration 110, 111, 112, 116, 141, 143, 144, 146, 147, 148, 152; Social Welfare 180; Psychology 106, 150.

Public Administration Major

With the A.B. in Applied Arts and Sciences

Preparation for the major. Economics 1A-1B, Political Science 2, and a 3-unit course in statistics (may be taken in upper division).

Major. Thirty-six upper division units to include Public Administration 140 and 198; Economics 131 or Public Administration 162; and additional upper division courses selected with approval of the departmental adviser, including a three-unit course in statistics if not taken in the lower division. Within this program, students may elect to specialize in urban management. Interested students should seek guidance from the director.

Public Administration Minor

The minor consists of 15 units to include Political Science 2, Public Administration 140, and Public Administration 197, 198, or other courses selected with the guidance of an adviser in public administration.

Certificate in Public Administration

This certificate is designed primarily for persons who hold administrative or managerial positions or for those who seek to prepare for such responsibilities. Previous academic experience is not a prerequisite; nor need the program be accompanied by work toward a degree. Candidacy will be established by the director of the program. The awarding of the certificate requires completion of an approved pattern of eight courses with a minimum grade point average of 2.5 (C+).

For further information, consult the director, Public Administration Certificate Program.

The department's undergraduate courses fall into three main areas:

- (1) *Criminal justice*. Most relevant are courses numbered 110, 111, 112, 116, 146, and 188.
- (2) *Public administration*. Most relevant are those numbered 136, 140, 141, 142, 143, 144, 145, 147, 149, 152, 155, and 156.
- (3) *Urban studies*. Most relevant are those numbered 148, 150, 154, and 160.

90. The Urban Scene (3)

Urban society as an environment in which people interact with such public institutions as municipal and county administrations, school districts, and special authorities; community control over institutions within the urban conglomerate; improving urban life styles.

110. Law Enforcement Administration (3)

Prerequisite: Sociology 1.

Administrative relationships within the criminal justice process with special reference to problems of courts and police and probation agencies.

111. Administration of Juvenile Justice (3)

Prerequisite: Sociology 114 or Public Administration 110 or 146.

Administration of programs for treatment of juvenile offenders by police, probation and courts.

112. The Administration of Criminal Law (3)

Prerequisite: Public Administration 110 or 146 or Political Science 135 or 139A.

Basic concepts of the criminal law; elements of crime and the administrative processes of law enforcement.

116. Contemporary Correctional Administration (3) II

Prerequisite: Sociology 113 or 114.

The problems encountered in administering modern correctional institutions, forestry and road camps, detention homes, and jails. (Formerly numbered Sociology 116.)

136. Administrative Law (3) II

The law of public office and public officers, powers of administrative authorities, scope and limits of administrative powers, remedies against administrative action.

140. Concepts and Issues in Public Administration (3)

Theory and practice of governmental administration in differing environments; role of administrators in public policy; issues facing administrators, techniques of administration.

141. Studies in Public Administration (1-3) I, II

Offered only in Extension.

Analysis of selected administrative processes and problems of governmental agencies, their legal and political relations to other agencies and to the public. With consent of instructor, may be repeated with new content.

142. Management of State Governments (3) I, II

Administrative and constitutional problems of state management in the American federal system. Emphasis on California. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

143. Management of Urban Governments (3) I, II

Problems of local units of government in the urban environment. Organization and function of local agencies. Emphasis on California. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

144. Public Personnel Administration (3) I, II

Prerequisite: Consent of instructor.

Problems in recruitment, placement and supervision of public employees.

145. Administrative Behavior (3) I

Social, psychological, and behavioral theories of organization; concepts of administrative leadership; organization and the individual; emphasis on governmental organizations.

146. Administration of Justice (3) I, II

Prerequisite: Public Administration 140 or Political Science 138 or 139A.

Fundamental problems in judicial administration in law enforcement, organization and management, and issues in judicial reform and in public safety.

147. Administration and Public Policy Development (3) I, II

Process of formulating public policy with emphasis on the role of public agencies. Case studies.

148. The Metropolitan Area (3) I, II

Prerequisite: Public Administration 142 or 143.

Problems of government and administration arising from population patterns and physical and social structures of metropolitan areas.

149. Comparative Public Administration (3) II

Prerequisite: Public Administration 140.

Administrative organization and process selected foreign and American governments. Analysis of the cultural basis of administrative systems.

150. Decision-Making in the Urban Community (3) I, II

Prerequisite: Public Administration 143.

Processes of decision-making in the management of urban communities.

151. California Law of Municipal Corporations (3) I, II

Offered in Extension only.

California law governing the nature, regulation and control of the counties, charter cities, sixth class cities, school districts and special districts. The creation, alteration, dissolution, legal actions by and against, powers and duties; rights and liabilities of local governments.

152. Administrative Management (3) I, II

Areas and problems of administrative research; methods of analyzing structures and procedures in organizations; planning and administration of programs; design of forms; job classification and salary surveys; preparation of administrative reports.

153. Management of the Federal Government (3) I, II

Prerequisite: Public Administration 140.

Problems in the administration of the federal government: for example, leadership, specialization, unity of command, oversight.

154. Intergovernmental Relations in the United States (3) II

Prerequisite: Political Science 2.

Constitution, political and administrative characteristics of American federalism, including regionalism, interstate compacts, and grants-in-aid.

155. Regulatory Administration (3) I, II

Prerequisite: Public Administration 140 or 146 or Political Science 139A-139B.

Fundamental structure, problems and criticisms of the regulatory systems in the United States.

156. Administrative Systems Analysis (3)

Two lectures and two hours of laboratory.

Prerequisites: Public Administration 140 and a statistics course.

Systems and organization analysis; survey of electronic systems; work standards and units; procedures analysis; administrative planning.

157. Public Relations of Public Agencies (3) I

Prerequisite: Public Administration 140.

Theory and practice of public relations in government. Public opinion and clientele groups in relation to administrative agencies. Problems in public relations of public agencies. Techniques of public relations.

160. Principles of Planning (3) I, II

An introduction to community planning: regional, county, and city. Consideration of the Master Plan, including its purposes, contents, and method of adoption.

161. Field Studies in Government (3) II, S

Prerequisite: Public Administration 140.

Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspection of work operations and facilities in management, public safety, public works and utilities, and other major governmental operations.

162. Fiscal and Budgetary Policy (3) I, II

Prerequisite: Public Administration 140.

Policies of fiscal administration and budgeting; political implications of the governmental budget process; revenue, debt, and treasury management; the functions of accounting and financial reporting.

188. Probation and Parole (3) I

Basic concepts, history, legislation, and practices used in work with juveniles and adults who have been placed on probation or parole; criteria of selection. methods of supervision, and elements of case reporting. (Formerly numbered Social Welfare 188.)

197. Investigation and Report (3) I, II

Analysis of special topics. Admission by permission of instructor.

198. Internship in Public Administration (2-6) I, II

Prerequisite: Consent of instructor.

Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

201. Scope and Method of Public Administration (3)**203. Seminar in Theory of Administrative Organization (3)****210. Seminar in the Administration of Criminal Justice (3)****216. Seminar in Correctional Administration (3)****230. Seminar in Public Financial Management (3)****240. Seminar in Public Administration (3)****241. Seminar in Public Personnel Administration (3)****242. Seminar in Public Administration in Developing Nations (3)****243. Science, Technology, and Public Policy (3)****245. Readings in Public Administration (3) I, II****249. Seminar in Comparative Administration (3)****250. Management of Urban Governments (3) I, II**

- 255. The Metropolitan Area (3) I, II**
- 260. Administration and Public Policy Development (3)**
- 291. Problem Analysis (3)**
- 296. Internship in Public Administration (1–3)**
- 297. Research in Public Administration (3)**
- 298. Special Study (1–3)**
- 299. Thesis (3)**

City Planning

- CP 261. Urban Design and Land Use Planning Studio (6)**
- CP 262. History of Urban Planning (3)**
- CP 265. Seminar in Planning Administration (3)**
- CP 266A. Seminar in Urban Planning (3)**
- CP 266B. Seminar in Urban Planning Methodologies (3)**
- CP 266C. Seminar in Urban Planning Implementation (3)**
- CP 266D. Seminar in Urban Planning Theory (3)**
- CP 267. Readings in Urban Planning (3)**
- CP 296. Internship in Urban Planning (3–6)**
- CP 297. Research in Urban Planning (3)**
- CP 298. Special Study (1–3)**

Recreation

In the College of Professional Studies

Faculty

Professor: Hanson, R.

Associate Professor: Butler, R. (Chairman)

Assistant Professor: Haffly

Offered by the Department

Major in recreation administration with the A.B. degree in applied arts and sciences.

Minor in recreation.

Recreation Administration Major

With the A.B. Degree in Applied Arts and Sciences

The major in recreation administration may be planned with an emphasis in one of the following four areas: (1) Leisure Agency Leadership, (2) Outdoor Recreation, (3) Park and Recreation Management, or (4) Recreation Rehabilitation.

Emphasis in Leisure Agency Leadership

Preparation for the major. Music 2; Physical Education 32A, 33A, 33B; Psychology 1; Recreation 40, 60, 70, 80, 84; Sociology 1 (23½ units).

Major. A minimum of 37 upper division units to include Health Science and Safety 146; Industrial Arts 101; Journalism 180; Psychology 106; Recreation 140, 165, 184. Nine units selected from Psychology 131, 145, 152; Sociology 113, 114, 125, 157. Eight units selected from Art 110; Drama 110; Education 140; Industrial Arts 140; Physical Education 122, 151, 175, 176.

Emphasis in Outdoor Recreation

Preparation for the major. Recreation 40, 60, 80; Biology 1 and 2; Geology 2; Geography 1; Botany 1; Economics 1A; Zoology 50. (27 units.)

Major. A minimum of 36 upper division units to include Recreation 165, 175, 185; Geography 170, 171, 175; Industrial Arts 101; Biology 115; and twelve units selected from the following: Biology 110, 165; Botany 112; Journalism 180; Political Science 117; Psychology 145; Zoology 114, 117, 135.

Emphasis in Park and Recreation Management

Preparation for the major. Psychology 1; Recreation 40, 60, 70, 80, 84; Sociology 1. Four units selected from Art 2A; Business Administration 80; Music 2; Physical Education 32A, 33A, 33B; Speech Communication 64 (23 units).

Major. A minimum of 38 upper division units to include Industrial Arts 101; Journalism 180; Public Administration 140, 143; Recreation 140, 165, 175, 184. Nine units selected from Psychology 106; Public Administration 144, 152; Sociology 114, 125, 157. Six units selected from Botany 112, Geography 170, 171, 175, or Recreation 185.

Emphasis in Recreation Rehabilitation

Preparation for the major. Psychology 1; Recreation 40, 60, 70, 80, 84; Sociology 1; and four units of electives from art, aquatics, business administration, dance, drama, or music (23 units).

Major. A minimum of 36 upper division units to include Industrial Arts 101; Journalism 180; Recreation 150, 151, 165, 184; Psychology 106, 109, 150. Nine units selected from Drama 110, 142; Education 122, 151, 154; Psychology 145, 152; Sociology 114, 135, 136; Education 135, 167; Health Science and Safety 175, 176.

Minor

The minor consists of 15 units to include two lower division units in art, dance, drama, or music; Recreation 60, 70, 80, 165, and 184; and Drama 110 or Recreation 140. Recommended: Industrial Arts 101, Physical Education 151, 175, 176, Psychology 106, Public Administration 144, and Recreation 150.

40. Challenges of Leisure (3) I, II

Study of leisure and its impact on contemporary life; issues affecting recreation in today's urbanized society.

60. Introduction to Community Recreation (2) I, II

Scope of community recreation; basic philosophy of leisure time agencies; leadership theory; organizations for youth; program planning; and playground practices.

70. Recreation Leadership (3) I, II

Two lectures and three hours of laboratory.

Plan and conduct programs in social recreation, recreational dramatics, song leading, handicrafts and low-organized games. Principles of group leadership.

80. Camp Leadership (2) I, II

Consideration of camp administration and principles of good camp leadership. Lectures and practical sessions aimed at general training in all phases of outdoor education and camp leadership, including skills in axemanship, outdoor cooking, nature projects, camp crafts, campfire and special camp programs.

84. Supervised Field Work (3) I, II

Prerequisites: Credit or concurrent enrollment in Recreation 60 and 70.

Observation and participation in community recreation leadership. Practical, volunteer experience in a variety of recreational settings. Minimum of one hour per week in class plus eight hours per week at an agency.

140. Conduct of Recreational Sports (2) I, II

Two lectures plus outside practical experience in the conduct of recreational sports programs.

Organization of competition, community sports programs, administration of intramural athletics, and techniques of officiating.

150. Recreation in Medical Settings (3) I, II

Recreation activities to meet the needs of handicapped confined to private, State, and Federal treatment centers. Designed for social welfare students, nurses, special education teachers, and medical recreators.

151. Practicum in Recreation for Special Groups (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Credit for or concurrent enrollment in Recreation 70.

Developing community recreation programs for one of the following groups: aging, mentally retarded, mentally ill and physically handicapped. May be repeated twice in different areas of exceptionality.

165. Administration of Recreation Programs (3) I, II

Prerequisite: Recreation 60.

Administrative authority and responsibility to plan, implement, finance, staff and evaluate organized programs of recreation. The use of social and human resources.

175. Management of Recreation Areas and Facilities (3) II

Prerequisite: Credit for or concurrent registration in Recreation 165.

Role of the recreation administrator in the planning, acquisition, development, financing, staffing and maintaining of recreational lands, waters, and structures. Use of natural and man-made resources in the environment.

184. Directed Leadership (3) I, II, S

One lecture and eight hours of supervised activity.

Prerequisite: Recreation 84.

Supervised leadership experience in public and private recreation agencies. May be repeated for a maximum of six units of credit.

185. Principles of Outdoor Recreation (3) I

Prerequisite: Minimum of one summer work experience in a federal or state recreational area.

Objectives and practices related to administration of recreational systems in regional, state, and federal parks and forests. Interpretation; enforcement problems; planning and operational techniques.

204. Problems in Recreation (3) (Alternate years)**205. Park Management (3) (Alternate years)****260. Recreation Administration and Supervision (3) (Alternate years)****261. Seminar in Specialized Facilities (3)**

Religious Studies

In the College of Arts and Letters

Faculty

Professor: Anderson, A.W.

Associate Professor: Jordan (Chairman)

Assistant Professor: Khalil

Offered by the Department

Major in religious studies with the A.B. degree in liberal arts and sciences.

Minor in religious studies.

Major with the A.B. Degree in Liberal Arts and Sciences

Preparation for the major. Religious Studies 20, 50, and Philosophy 1A-1B.

Major. A minimum of 24 upper division units in religious studies to include either Religious Studies 100A or 100B, at least six units from courses listed in Group I below, at least six units from Group II, at least three units from Group III, and at least three units from Group IV. Six of the 24 upper division units required for the major may be taken from among those courses other than religious studies courses which are included in Group II and Group III below.

Group I: Religious Studies 110, 111A-111B, 114, 115, and 116.

Group II: Religious Studies 121A-121B, Philosophy 150A-150B.

Group III: Religious Studies 130, 132, Philosophy 135, Sociology 138, Anthropology 153.

Group IV: Religious Studies 190, 191.

Minor

The minor in religious studies consists of from 15 to 22 units to include at least three lower division units in religious studies, at least three units from Group I, at least three units from Group II, and at least three units from Group III.

Group I: Religious Studies 110, 111A-111B, 114, 115, 116.

Group II: Religious Studies 121A-121B, Philosophy 150A-150B.

Group III: Religious Studies 130, 132, Philosophy 135, Sociology 138, Anthropology 153.

Group IV: Religious Studies 190, 191.

20. World Religions (3)

Major figures, attitudes and teachings of world religions.

50. Problems of Religion (3)

Problems in the study of religions, based on the study of scripture selected from Eastern and Western religions.

100A-100B. The Bible (3-3)

Prerequisite: Three units of religious studies.

The problems of composition and historical significance in the context of religious meanings. First semester: the Pentateuch, the Prophets and the Writings. Second semester: the New Testament.

110. Greek and Latin Fathers (3)

Prerequisite: Six units of religious studies.

Readings in patristic thought from Ignatius of Antioch through Augustine.

111A-111B. The Western Christian Tradition (3-3)

Prerequisite: Religious Studies 110, 111A is prerequisite to 111B.

Readings in source materials illustrative of the doctrinal and institutional development of the Western Church. First semester: the Medieval Church and early stages of the Reformation. Second semester: the Reformation and the Enlightenment.

114. The Eastern Orthodox Tradition (3)

Prerequisite: Religious Studies 110.

Major doctrines, practices, and developments in the Eastern Church after the Patristic period up to the present.

115. Judaism (3)

Prerequisite: Three units of religious studies.

Major trends and teachings from the Talmudic period to the present.

116. Islam (3)

Prerequisite: Three units of religious studies.

Major doctrines, practices, and developments from the time of Mohammed to the present.

121A-121B. Oriental Religions (3-3)

Prerequisite: Three units of religious studies.

Phenomenological studies in the major religious traditions of south and east Asia. First semester: religions of India—especially Hinduism and Buddhism. Second semester: religions of the Far East.

126A-126B. Scriptures of India and China (3-3)

Formerly Philosophy 150A-150B, Asian Thought.

Prerequisite: Religious Studies 50, 121A, or 121B; or six units of philosophy.

The religious and philosophical modes of thought and ways of life of the Orient. Reading and analysis of primary texts in translation. Semester I: India and South-east Asia. Semester II: China and Japan.

130. Theory and Practice of Worship (3)

The symbolic structure of devotional performance.

131A-131B. Religion and Culture (3-3)

The relations between religion and aspects of major cultural traditions. First semester: primarily the plastic arts and music. Second semester: primarily literature and drama.

132. Dynamics of Religious Experience (3)

Prerequisite: Six units in humanities or social sciences.

Chief data and major approaches in the study of individuals' religious behavior and experiences. Special attention to relevant problems in world religions and philosophical views of man. (Formerly numbered 125.)

135. Religion and Science (3) I, II

Prerequisite: Religious Studies 20 or 50.

A critical exploration of the relation of science to religious conceptions of human nature and destiny.

136. Religion and Relevance (3) I, II

Prerequisite: Religious Studies 100A or 100B.

A critical exploration of the contemporary understanding of biblical religion in relationship to social action as exemplified in the writings of theologians and concerned laity.

140. The Oracular Tradition (3)

Prerequisites: Religious Studies 50; and 121A, 121B, 126A, 126B, 131A, or 131B.

Oracular traditions of East and West, with special attention to the *I Ching* and the Tarot.

180. A Major Figure (3) I, II

Prerequisites: Religious Studies 20 or 50, and three upper division units in religious studies.

Life, works, and significance of one major figure in a religious tradition. May be repeated with new content. Maximum credit six units.

181. A Metaphysical Doctrine (3) I, II

Prerequisites: Philosophy 1B, Religious Studies 20, or 50; and three upper division units in religious studies.

Systematic study of a selected theme or problem basic to the teachings of one of the major religious traditions. May be repeated with new content. Maximum credit six units.

190. Advanced Studies in Religious Practices (3)

Prerequisite: Nine upper division units in religious studies including at least three units in Oriental traditions and three in Western traditions.

Research in the function and significance of ritual, prayer, and meditation.

191. Advanced Studies in Religious Doctrines (3)

Prerequisite: Nine upper division units in religious studies including at least three units in Oriental traditions and three in Western traditions.

Research in the significance of selected teachings of the major religions.

192. Recent Christianity (3)

Prerequisite. Religious Studies 111B; 114 is recommended.

Themes in the development of Christian institutions and doctrines in the 19th and 20th centuries.

Russian

See German and Russian.

Social Welfare

Social Work

See "School of Social Work" in the catalog section Professional Schools, Courses and Curricula.

Sociology

In the College of Arts and Letters

Faculty

Emeritus: Barnhart

Professors: Daniels, DeLora, J.R., Gillette (Chairman), Johnson, C.D., Kirby, Klapp, Milne, D.S., Mouratides, Wendling

Associate Professors: Chandler, El-Assal, Winslow

Assistant Professors: Baldock, C., Buck, Cottrell, A., DeLora, J.H., Drake, C., Emerick, Kennedy, Lally, Scheck, Schulze, Stephenson, J., Werner

Lecturer: Arfinan

Offered by the Department

Master of Arts degree in sociology.

Major in sociology with the A.B. degree in liberal arts and sciences.

Minor in sociology.

Major with the A.B. Degree in Liberal Arts and Sciences

Students majoring in sociology must complete a minor in another field.

Preparation for the major. Sociology 1, 10, and 60. (9 units.) Advanced students in junior and senior years entering the major may take Sociology 102 in place of Sociology 1, but may not use 102 to fulfill minimal upper division requirements in the sociology major.

Major. A minimum of 24 upper division units in sociology to include Sociology 101, 122, and 140.

Sociology Minor

The minor in sociology consists of from 15 to 22 units in sociology, nine units of which must be in upper division courses (except Sociology 102.)

1. **Introductory Sociology (3) I, II**

This course, or Sociology 102, is prerequisite to all upper division courses in sociology.

Development and use of the concepts applied to sociological analysis; the effects of isolation and social contacts, interaction, processes, forces, controls, collective behavior, and social progress. Not open to students with credit in Sociology 102.

10. **Contemporary Social Problems (3) I, II**

Prerequisite: Sociology 1.

Modern social problems recognizing the sociological factors involved. Emphasis on the scientific method of approach. An evaluation of various causes and solutions of problems. Not open to students with credit in Sociology 110 or Mexican-American Studies 10.

35. **Marriage and the Family (3) I, II**

Analysis of dating, engagement, marriage and family relationships. The married couple as a small group viewed through contemporary sociological and social psychological principles and research findings. Factors predictive of marital behavior. Not open to students with credit in Home Economics 35, Social Welfare 35, or other course in marriage and the family, or in courtship and marriage.

60. **Elementary Social Statistics (3) I, II**

Prerequisites: Sociology 1 and Mathematics 3.

Analysis and presentation of elementary materials in the fields of sociology and social work. Tabular and graphic presentation, analysis of frequency distribution, trends, simple correlation, sampling and reliability techniques. Not open to students with credit for, or concurrent enrollment in, another course in statistics.

64. Sociological Analysis (3) I, II

Prerequisite: Sociology 1 or 102.

Development and use of fundamental procedures of sociological investigation.

100. History of Social Thought (3) I, II

Prerequisite: Sociology 1 or 102.

Development of social thought prior to the appearance of sociology as a distinct scientific discipline. Major emphasis on European contributions.

101. Classical Sociological Theory (3) I, II

Prerequisite: Sociology 1 or 102.

Theories of the major early European and American sociologists, including Marx, Weber, Durkheim, Pareto, Cooley, Mead, and others.

102. Principles of Sociology (3) I, II

Development and use of the concepts that are applied to sociological analysis. A more intensive introduction to sociology than given in Sociology 1. Not open to students with credit in Sociology 1. Sociology 102 may not be used to fulfill the minimal upper division requirements in the sociology major or minor or the special major.

103. Contemporary Sociology Theory (3) I, II

Prerequisite: Sociology 101.

Types and trends of contemporary sociological theory. Selected theoretical works.

104. Social Change (3) I, II

Prerequisite: Sociology 1 or 102.

Social change at the interpersonal, institutional, and societal levels in a comparative perspective. Detailed analysis of modernization.

110. Social Disorganization (3) I, II

Prerequisite: Sociology 1 or 102.

Survey of many alleged abnormal phenomena in society as seen in society today in various forms of individual, family, community and world disorganization, such as crime, prostitution, extreme alcoholism, migratory workers, divorce, revolution, war, etc.

111. Current Social Issues (3) I, II

Prerequisite: Sociology 1 or 102.

Selected controversial and currently relevant social issues. Maximum opportunity provided for student initiative in determining course content and procedures.

112. Sociology of Conflict (3) I, II

Prerequisite: Sociology 1 or 102.

Conflict as a social process: background, forms and consequences at the interpersonal, intergroup, class, and international levels from a sociological frame of reference. Major theories of social conflict.

113. Criminology and Penology (3) I, II

Prerequisite: Sociology 1 or 102.

The extent and characteristics of crime; consideration of physical, mental, economic, and sociological causes of crime; study of methods of penal discipline, prison labor, parole, and probation; programs of prevention.

114. Juvenile Delinquency (3) I, II

Prerequisite: Sociology 1 or 102.

The nature and extent of delinquency; the causative factors involved; methods of control and prevention, with special attention to the protective and remedial measures offered by the school, home, juvenile court, correctional institutions and camps, probation and parole, and recreational agencies.

120. Industrial Sociology (3) I, II

Prerequisite: Sociology 1 or 102.

Group relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions.

121. Sociology of Occupations and Professions (3) I, II

Prerequisite: Sociology 1 or 102.

Division of labor, status ranking of occupations, authority structures, occupational and professional organization, occupational socialization, problems of identity and role conflict.

122. Social Organization (3) I, II

Prerequisite: Sociology 1 or 102.

Major forms of social organization such as institutions, associations, bureaucracy, primary groups, and stratification. Study of underlying processes of development, social control and organizational change.

123. The Sociology of Mental Illness (3) II

Prerequisite: Sociology 1 or 102.

The social definition, ecology, and control of mental illness across various societies. The implications of social differentiation, stratification, and urbanization upon the incidence, prevalence, and control of mental illness and the use of these empirical problems for sociological research.

124. Social Stratification (3) I, II

Prerequisite: Sociology 1 or 102.

Theories of stratification in society; studies in the American stratification system and its implications in the other areas of life. Introduction to the study of mobility. Comparison with other selected societies.

125. Minority Group Relations (3) I, II

Prerequisite: Sociology 1 or 102.

Theories of ethnic prejudice. Analysis of racial and ethnic discrimination. Analytical inquiry into sources of friction and causes of conflict between majority and minority groups.

126. Medical Sociology (3) I

Prerequisite: Sociology 1 or 102.

A sociological analysis of health and medical institutions. Cultural factors in conceptions of disease, health, and healing. Social structure of medical facilities and the role of personnel in such institutions. Relation of illness to income, housing, and other socio-economic factors. Not open to students with credit in Health Science and Safety 176. (Formerly numbered Sociology 121.)

132. Formal Organization (3) II

Prerequisites: Sociology 1 or 102, and 122.

The structure and dynamics of various types of complex formal organizations. Their development, internal structure and processes, external relations and function in contemporary society.

135. Dynamics of Family Development (3) II

Prerequisite: Sociology 1 or 102.

Analysis of the history of families; how they form, function, and grow to maturity. Focus on the development and interaction of family members throughout all stages of family life cycle from marriage to dissolution. (Not open to students with credit in another upper division course in marriage and the family.)

136. Sociology of the Family (3) II

Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.

A comparative study of family systems in different societies. Changing role-structure and functions of the modern family; rural-urban, social class, racial and ethnic differences in family organization; marriage and family as a developing system of interpersonal relationships.

137. Political Sociology (3) I

Prerequisites: Sociology 1 and 122.

Social organization of political processes. Power and authority, social class, primary groups, collective behavior, social change, and other sociological factors considered in their relationships to political processes.

138. Sociology of Religion (3) II

Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.

The role of religion in society as cult and institution, including primitive religion, modern sects and churches, ritual, secularization, and religious movements.

139. Sociology of Education (3) I

Prerequisite: Sociology 1 or 102.

Social organization of education, teaching as a profession. Class, ethnic and other social factors affecting the educational process. Educational institutions and the community.

140. Social-Psychology: Sociological Approaches (3) I, II

Prerequisites: Sociology 1 or 102 and Psychology 1.

The major problems and findings of social-psychological studies with reference to group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Psychology 145.

145. Sociology of Mass Communication (3) I, II

Prerequisite: Sociology 1 or 102. Sociology 140 and 146 are recommended.

Sociological analysis of the processes and effects of mass communications in different social systems, their functions and dysfunctions, and their relationships to other social institutions.

146. Collective Behavior (3) I, II

Prerequisites: Sociology 1 or 102, and 140.

The basic processes of social behavior in masses and groups, including crowd behavior, fads, fashions, crazes, panics, rumors; sects and cults; heroes and scapegoats; social movements; effects of mass communication.

147. Sociology of Social Movements (3) I, II

Prerequisite: Sociology 1 or 102. Sociology 122 and 146 are recommended.

Revolutionary and reform movements in relationship to the larger society. Conditions leading to development of social movements, emergence of leadership, ideologies, strategies, recruitment of members and social consequences, case studies in depth.

148. Small Groups (3) I

Prerequisites: Sociology 1 or 102, and 140.

Processes, morale and organization of small groups; their role in society and institutions such as industry, military, recreation and education; recent studies and methods of research.

150. Population Problems (3) I

Prerequisite: Sociology 1 or 102.

Problems of population relative to age, sex, and racial distribution. Population practices and theories. Biological and geographical aspects of population problems. International population movements.

151. Research Methods in Demography (3) II

Prerequisites: Sociology 60 or Economics 2, and Sociology 150.

Standard procedures in the measurement of fertility, mortality, natural increase, migration, population growth and manpower, and working activities. Appraisal of source materials. Students to complete one project during term.

157. Urban Sociology (3) II

Prerequisite: Sociology 1 or 102.

The structure and function of the modern city; types of neighborhoods; forms of recreation; social forces in a metropolitan area; types of urban personalities and groups; rural-urban conflicts of culture. Practical field studies required.

160. Quantitative Methods in Social Research (3) I

Prerequisite: Sociology 60.

The use of parametric and non-parametric techniques in the analysis of social research data; including analysis of variance; covariance; multiple and partial correlational techniques.

164. Methods of Social Research (3) I, II

Prerequisites: Sociology 1 or 102, and 60.

Research methods and interpretation used in the study of communities, institutions, and social conditions.

197. Investigation and Report (3) I, II

Prerequisite: Fifteen units in sociology and consent of instructor.

Analysis of special topics in sociology. Maximum credit six units.

200. Seminar in Social Theory (3)**205. Directed Readings in Social Theory (3)****210. Seminar in Social Disorganization (3)****215. Directed Readings in Social Disorganization (3)****220. Seminar in Social Organization (3)****225. Directed Readings in Social Organization (3)****230. Seminar in Social Institutions (3)****235. Directed Readings in Social Institutions (3)****240. Seminar in Social Psychology: Sociological Approaches (3)****245. Directed Readings in Social Psychology: Sociological Approaches (3)****250. Seminar in the Community (3)****255. Directed Readings in the Community (3)****260. Seminar in Research Methods (3)****265. Directed Readings in Research Methods (3)****270. Seminar in Population and Demography (3)****275. Directed Readings in Population and Demography (3)****290. Bibliography (1)****297. Research (3)****298. Special Study (1-3)****299. Thesis (3)**

Spanish and Portuguese

In the College of Arts and Letters

Faculty

Emeritus: Brown, L.

Professors: Baker, C. H., Case, Lemus

Associate Professors: Head, Sender, Weeter, Walsh, J. (Chairman)

Assistant Professors: Barrera, Christensen, Fornoff, Jiménez-Vera, O'Brien, M., Segade, Talamantes, Windsor

Offered by the Department

Master of Arts degree in Spanish.

Major in Spanish with the A.B. degree in liberal arts and sciences.

Teaching major in Spanish with specialization in both elementary and secondary teaching.

Minor in Spanish.

Teaching minor in Spanish with specialization in both elementary and secondary teaching.

Spanish Major

With the A.B. in Liberal Arts and Sciences

A minor is required in a field approved by the departmental adviser.

Preparation for the major. Spanish 1, 2, 3, 4, 10, and 11 (20 units).

Major. Twenty-four upper division units in Spanish, to include Spanish 101A-101B, 102A-102B, and 12 units in the period literature of the language.

For the Standard Teaching Credential

Preparation for the major. As above.

Teaching major. Twenty-four upper division units, to include Spanish 101A-101B, 102A-102B, 150, 190, and six units of electives in Spanish. Candidates for the elementary credential must in addition complete Education 136. Candidates for the secondary credential must in their postgraduate year complete six units of graduate courses (200-numbered) in Spanish.

Spanish Minor

The minor consists of 15 units in Spanish, six of which must be upper division.

For elementary teaching it consists of 20 units in Spanish, six of which must be upper division. For secondary teaching it consists of 20 units in Spanish, to include Spanish 101A-101B and 102A-102B.

High School Equivalents

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Spanish may be counted as the equivalent of Spanish 1; three years the equivalent of Spanish 2; and four years the equivalent of Spanish 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work. Students entering San Diego State with five or six years of high school Spanish may enroll in Spanish 4; the department recommends, however, that they take Spanish 21, 22, or 23.

Parallel provisions apply to Portuguese.

Portuguese

1. Elementary (4)

Four lectures and one hour of laboratory.

Pronunciation, oral practice, reading on Luso-Brazilian culture and civilization, essentials of grammar.

2. Elementary (4)

Four lectures and one hour of laboratory.

Prerequisite: Portuguese 1.

Continuation of Portuguese 1.

3. Intermediate (4)

Prerequisite: Portuguese 2.

A practical application of the fundamental principles of grammar. Reading in Portuguese of cultural material, short stories, novels or plays; oral practice.

4. Intermediate (4)

Prerequisite: Portuguese 3.

Continuation of Portuguese 3.

10. Conversation (2)

Prerequisite: Portuguese 2.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2)

Prerequisite: Portuguese 10.

Continuation of Portuguese 10.

101A-101B. Advanced Oral and Written Composition (3-3)

Prerequisite: Portuguese 4.

Oral and written composition in Portuguese, based on models from modern Portuguese and Brazilian literature.

134. Portuguese Literature (3)

A study of important movements, authors and works in the literature of Portugal from its beginnings to the present.

135. Brazilian Literature (3)

A study of the important movements, authors and works of the literature of Brazil from the colonial period to modern times.

185. Selected Studies (3)

Topics in Luso-Brazilian language, literature, culture, and linguistics.

Spanish

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Spanish culture and civilization, minimum essentials of grammar.

2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: Spanish 1 or two years of high school Spanish.

Continuation of Spanish 1.

3. Intermediate (4) I, II

Prerequisite: Spanish 2 or three years of high school Spanish.

A practical application of the fundamental principles of grammar. Reading in Spanish of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. Special sections available for the Spanish speaking.

4. Intermediate (4) I, II

Prerequisite: Spanish 3 or four years of high school Spanish.

Continuation of Spanish 3. Special sections available for the Spanish speaking.

10. Conversation (2) I, II

Prerequisite: Spanish 2 or three years of high school Spanish.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) I, II

Prerequisite: Spanish 10 or Spanish 3, or four years of high school Spanish.

Continuation of Spanish 10.

21. Intermediate Oral and Written Composition (3)

Prerequisites: Spanish 4 and 11.

Directed written composition with stress on current usage. Oral reports on assigned topics.

22. Introduction to Syntax and Style (3)

Prerequisites: Spanish 4 and 11.

Study of structure and idiomatic usage. Analysis of style based on passages chosen from modern literature.

23. Introduction to Literature (3)

Prerequisites: Spanish 4 and 11.

Selected readings from Peninsular and Latin American prose. Oral and written reports and class discussions. Course conducted in Spanish.

40. Spanish Civilization (3) I

Prerequisite: Spanish 4.

The major currents and characteristics of Spanish culture, as expressed through the centuries in literature, art, and philosophy.

41. Spanish-American Civilization (3) II

Prerequisite: Spanish 4.

The major currents and characteristics of Spanish-American culture, as expressed through the centuries in literature, art, and philosophy.

42. Mexican Civilization (3)

Prerequisite: Spanish 4.

The major currents and characteristics of Mexican culture, as expressed through the centuries in literature, art, and philosophy.

101A-101B. Advanced Oral and Written Composition (3-3)

Prerequisites: Spanish 4 and 11. with a grade of C or better.

Translation into Spanish of moderately difficult English prose passages. Free composition in Spanish. Outside reading of modern Spanish plays, with written reports in Spanish. Oral practice on colloquial Spanish with extensive use of phonograph recordings. Special sections available for the Spanish speaking.

102A-102B. Survey Course in Spanish Literature (3-3)

Prerequisite: Spanish 4 with a grade of C or better.

Important movements, authors, and works in Spanish literature from the Middle Ages to the present.

104A-104B. Spanish-American Literature (3-3)

Prerequisites: Spanish 4 and 11 with grade of C or better.

Reading from representative Spanish-American authors during the colonial, revolutionary and modern periods. Lecturers, class reading, collateral reading and reports.

105A-105B. Modern Spanish Drama (3-3)

Prerequisites: Spanish 4 and 11 with grade of C or better.

The development of the drama of Spain from the beginning of the nineteenth century to the present time.

106A-106B. Mexican Literature (3-3)

Prerequisites: Spanish 4 and 11 with grade of C or better.

Aspects of Mexican culture. The first semester, a rapid survey of Mexican literature from the colonial period to the twentieth century. The second semester, the twentieth century, with emphasis on the contemporary Mexican novel and theater.

107. Caribbean Area Countries Literature (3)

Prerequisites: Spanish 4 and 11.

Literature of Caribbean Islands, Central America, Colombia and Venezuela, from colonial period to present. Special emphasis on contemporary era.

108. Andean Countries Literature (3)

Prerequisites: Spanish 4 and 11.

Literature of Ecuador, Peru, Bolivia and Chile from the period immediately preceding the Spanish conquest to today.

109. River Plate Literature (3)

Prerequisites: Spanish 4 and 11.

Literature of Argentina, Paraguay and Uruguay from colonial period to present.

110. Nineteenth Century Spanish Novel and Short Story (3)

Prerequisites: Spanish 4 and 11.

The development of the novel and short story in Spain in the nineteenth century.

111. Twentieth Century Spanish Novel and Short Story (3)

Prerequisites: Spanish 4 and 11.

The development of the novel and short story in Spain to 1936, with emphasis on the novel of the generation of 1898.

112. Contemporary Spanish Novel (3)

Prerequisites: Spanish 4 and 11.

The development of the novel and short story in Spain since 1936.

130. Poetry of the Spanish Golden Age (3)

Prerequisites: Spanish 4 and 11.

Major poets of the Siglo de Oro.

131. Prose of the Spanish Golden Age (3)

Prerequisites: Spanish 4 and 11.

Major prose writers of the Siglo de Oro.

132. Drama of the Spanish Golden Age (3)

Prerequisites: Spanish 4 and 11.

The major dramatists of the Siglo de Oro.

140. Spanish Civilization (2) I

Offered only at the Imperial Valley campus.

An advanced course in Spanish culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

141. Spanish-American Civilization (2) II

Offered only at the Imperial Valley campus.

An advanced course in Spanish-American culture. From the period of the Spanish Conquest to the present, with emphasis on the arts, literature, and philosophy. Lectures, class discussions, outside readings, written reports on individual topics.

149. Spanish Linguistics (3)

Prerequisites: Spanish 4 and 11.

Structural, historical, and applied Spanish linguistics.

150. Phonetics and Phonemics (3) II

Prerequisites: Spanish 4 and 11 with a grade of C or better.

The sounds of Spanish and of the Spanish phonemic system, with special attention to the problems involved in the teaching of Spanish pronunciation to English-speaking students.

170. Spanish-American Poetry (3)

Prerequisites: Spanish 4 and 11.

Spanish-American poetry of the 19th and 20th centuries.

171. Spanish-American Short Story (3)

Prerequisites: Spanish 4 and 11.

Principal Spanish-American short story writers.

172. Spanish-American Theatre (3)

Prerequisites: Spanish 4 and 11.

Principal Spanish-American dramatists and movements.

180. Modern Spanish Poetry (3)

Prerequisites: Spanish 4 and 11.

Spanish poetry of the 19th and 20th centuries.

185. Selected Studies in Spanish (3)

Topics in Spanish or Spanish-American language, literature, culture, and linguistics. Maximum credit six units.

190. Advanced Grammar (3)

Prerequisites: Spanish 101A and 101B.

Significant systematic features of modern Spanish grammar with analysis of passages from literature. Recommended for credential applicants.

201. History of the Spanish Language (3)

202. Cervantes (3)

203. Lope de Vega and Calderon (3)

204. The Spanish-American Novel (3)

205. The Gaucho Epic (3)

206. Modernism (3)

207. Medieval Spanish Literature (3)

208. The Modern Spanish Essay (3)

209. The Spanish-American Essay (3)

210. Contemporary Spanish-American Prose Fiction (3)

220. Seminar in Spanish Golden Age Literature (3)

230. Seminar in 19th Century Spanish Literature (3)

240. Seminar in 20th Century Spanish Literature (3)

250. Seminar in Spanish-American Literature (3)

255. Seminar in Spanish-American Culture and Thought (3)

260. Seminar in Medieval Spanish Literature (3)

270. Applied Spanish Linguistics for Teachers (3)

290. Research and Bibliography (3)

294. Comprehensive Reading and Survey Course (3)

298. Special Study (1-3)

299. Thesis (3)

Speech Communication

In the College of Professional Studies

Faculty

Professors: Ackley, Adams, W., Benjamin, Mills (Chairman), Samovar

Assistant Professors: Babich, Sanders, Smith, Craig R.

Offered by the Department

Master of Arts in speech.

Major in speech with the A.B. in applied arts and sciences.

Teaching major in speech, with specialization in secondary teaching.

Minor in speech.

Teaching minor in speech, with specialization in both elementary and secondary teaching.

Speech Major

With the A.B. in Applied Arts and Sciences

Preparation for the major. Speech Communication 5, 11A or 11B, 60, and 62 (12 units).

Major. Twenty-seven upper division units, to include Speech Communication 108, 130, 135, 150, 162, 191, 192B, and six units of electives in speech communication.

For the Standard Teaching Credential for Secondary Teaching

The requirements are as above, except that in his postgraduate year the candidate must take six upper division or graduate units in speech communication.

Speech Minor

The minor consists of 23 units in speech communication, to include Speech Communication 3 or 4, 11A or 11B, 60, 62, and twelve units of upper division electives in speech communication.

The requirements are the same for the minor for elementary and secondary teaching.

3. Oral Communication (2–3) I, II

Training in fundamental processes of oral expression; method of obtaining and organizing material; outlining; principles of attention and delivery; practice in construction and delivery of various forms of speeches. Speech Communication 3 or 4 recommended in general education. Not open to students with credit for Mexican-American Studies 2A. (Formerly numbered Speech Arts 3.)

4. Intermediate Public Speaking (3) I, II

Practice in extemporaneous speaking on subjects of current interest, both national and local, with stress on organization and delivery. Speech Communication 3 or 4 recommended in general education. Not open to students with credit for Mexican-American Studies 2A. (Formerly numbered Speech Arts 4.)

5. Introduction to Speech Communication (3) I, II

An introduction to the field of speech communication.

11A. Fundamentals of Interpretation (3) I, II

Application of the principles involved in “making words come alive”: response to thought and mood, sensory association, emphasis, climax. Practice selections in poetry and prose. (Formerly numbered Speech Arts 11A).

11B. Intermediate Interpretation (3)

Prerequisite: Speech Communication 11A.

Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse. (Formerly numbered Speech Arts 11B.)

60. Argumentation and Debate (3)

Obtaining and organizing of evidence and the construction and use of the brief; study and discussion of current issues; the presentation of formal and informal debates. Participation in intercollegiate debate optional. (Formerly numbered Speech Arts 60.)

61. Intercollegiate Debate (1) I, II

Two field trips required.

Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. Maximum credit four units, for 61 and 161. (Formerly numbered Speech Arts 61.)

62. Interpersonal Communication (3)

Prerequisite: Speech Communication 3 or 4.

Principles and application of interpersonal communication. Special emphasis on listening, interviewing, group dynamics, serial transmission, feedback and general semantics. (Formerly numbered Speech Arts 62.)

64. Principles of Parliamentary Procedures (1) I, II

Two hours.

The rules which govern discussion and procedures in organized assemblies. The class will be arranged as a parliamentary body to afford practice in the application of the rules. (Formerly numbered Speech Arts 64.)

101. Management of Speech Activities (1) I, II

Two hours of activity.

Planning, preparation, management and supervision of speech tournaments and other interscholastic activities under the supervision of the speech communication staff. Maximum credit two units. (Formerly numbered Speech Arts 101.)

108. Advanced Interpretation (3) I, II

Three lecture-demonstrations per week and 32 hours of laboratory per semester.

Prerequisite: Speech Communication 11A or 11B.

Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artists as they affect the interpretative artist. (Formerly numbered Speech Arts 108.)

109. Workshop in Speech (1-3)

Study of some problem in speech communication. Maximum credit six units. (Formerly numbered Speech Arts 109.)

130. Semantics (3) I, II

Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies. (Formerly numbered Speech Arts 130.)

135. Theories of Human Communication (3) I, II

Prerequisite: Six units of speech communication.

Special emphasis on various communication theories and models; the relationship of mental variables such as perception, roles and status, behavior change, language and motivation to the entire communication process. (Formerly numbered Speech Arts 135.)

150. Rhetorical Theory and Criticism to 400 A.D. (3) I, II

An analysis of rhetorical theory and criticism with special attention to Plato, Aristotle, Isocrates, Quintillian, and Cicero. The development of theory and systems of criticism culminating in the application of principles to public address.

152. Rhetorical Theory and Criticism 400 A.D. to 1900 (3) I, II

Prerequisite: Speech Communication 150.

An analysis of rhetorical theory and criticism with special attention to Longinus, Vives, Ramus, Cox, Bacon, Campbell, Whately, Blair, and James. The development of theory and systems of criticism culminating in the application of principles to public discourse.

154. Contemporary Rhetorical Theory and Criticism (3) I, II

Prerequisite: Speech Communication 150.

An analysis of rhetorical theory and criticism in the twentieth century with special attention to Arnold, Bitzer, Burke, Hochmuth, and Winans. A unified body of principles for rhetorical theory and criticism will be derived and applied to contemporary discourse.

161. Intercollegiate Debate (1) I, II

Two field trips required.

Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. Maximum credit four units for 61 and 161. (Formerly numbered Speech Arts 161.)

162. Advanced Argumentation (3) I

The approaches to argument and the patterns and problems in argument. Consideration of implications for society. Written and oral reports. (Formerly numbered Speech Arts 162.)

180. American Public Address (3) I, II

Public discourse from the colonial period to the present.

189. Ethics of Speech Communication (3)

Prerequisite: 6 upper division units in philosophy or speech communication.

Classical and modern ethical concepts applied to oral persuasion.

191. Group Communication (3) I, II

The role of group discussion in a democratic society. Principles and methods of group discussion in problem solving and learning situations. Practice in dealing with questions of policy and controversial issues. Development of skills in discussion preparation, participation and leadership. (Formerly numbered and entitled: Speech Arts 191, Organized Discussion.)

192A. Advanced Public Speaking (3) I

Prerequisite: Speech Communication 4.

The preparation and delivery of longer speeches. Study of classic models of public address. (Formerly numbered Speech Arts 192A.)

192B. Oral Persuasion (3) II

Prerequisite: Speech Communication 4.

Oral persuasion with an emphasis on motivation and the evaluation of persuasive techniques. Research project on a significant current problem. Results of research and persuasive principles used in actual speech. (Formerly numbered Speech Arts 192B.)

193. Mass Persuasion (3) I, II

Prerequisite: Speech Communication 4.

An historical and critical analysis of the theories, techniques and ethics of oral communicators who employ radio and television as a means of presenting social, political and religious issues. (Formerly numbered Speech Arts 193.)

194. History of Public Address (3) II

Prerequisite: Speech Communication 4.

Speakers and speaking from Ancient Greece to the present. Functions of public speaking in the growth and development of ideas, ideals, and institutions. (Formerly numbered Speech Arts 194.)

198. Selected Topics in Speech Communication (1–3) I, II

Prerequisite: Twelve units in speech communication.

A specialized study of selected topics from the areas of speech communication. May be repeated with new content. Maximum credit six units.

200. Research and Bibliography (3)**208. Seminar in Oral Interpretation (3)****230. Seminar in the Analysis of Language (3)****235. Seminar in Communication Theory (3)****250. Seminar in Rhetorical Theory (3)****251. Seminar in Rhetorical Criticism (3)****262. Seminar in Argumentation (3)****280. Seminar in American Public Address, 1600–1850 (3)****281. Seminar in American Public Address, 1850 to present (3)****282. Seminar: Contemporary American Public Address (3)****290. Experimental Procedures in Speech Communication (3)****291. Seminar in Group Discussion Theory (3)****293. Seminar: Greek and Roman Public Address (3)****294. Seminar: 18th Century British Public Address (3)****298. Special Study (1–3)****299. Thesis or Project (3)**

Speech Pathology and Audiology

In the College of Professional Studies

Faculty

Professors: Earnest (Chairman), Kopp, H., Pfaff, Riedman
Associate Professors: Nichols, A., Thile
Assistant Professors: Dimmick, Harris, M.

Offered by the Department

Master of Arts in speech pathology and audiology.

Major in speech pathology and audiology with the A.B. in applied arts and sciences.

Minor in speech, with emphasis in speech pathology and audiology.

Specialized preparation in lieu of a minor: teacher of deaf or severely hard of hearing. *See* Education.

Specialized preparation in lieu of a minor: teacher of handicapped in speech or hearing (Plan I). *See* Education.

Restricted Credential, Speech and Hearing Specialist (Plan II).

Major in Speech Pathology and Audiology

With the A.B. in Applied Arts and Sciences

Preparation for the major. Mathematics 3 (or qualification on the mathematics placement examination); Physics 5; Psychology 1, 50, and 70; Speech Communication 3 or 4; Speech Pathology and Audiology 4, 5, and 6 (26–27 units).

Major. Twenty-four units selected, with approval of the adviser, from Speech Pathology and Audiology 120 and higher numbered courses.

Speech Minor

The minor in speech, with emphasis in speech pathology and audiology, consists of 15 units in speech pathology and audiology, nine of which must be upper division.

Restricted Credential: Speech and Hearing Specialist

This is a five-year program leading to a credential which authorizes service in all grades in the area specified. It requires the same lower division courses as are required in the preparation for the major in speech pathology and audiology, a bachelor's degree, and completion of the following courses: Education 101 (or 202) and 167; Psychology 106; Speech Pathology and Audiology 120, 121, 122, 123, 124 (or 206), 126, 127, 128, 129, 140, 145, 151, and 228; and 15 units, chosen with approval of the adviser, from Speech Pathology and Audiology 143, 150, 152, 190, 198, 201, 202, 203, 204, 205, and 206.

1. Speech for International Students (3)

Training in production of American speech sounds, blending and assimilation, American prose rhythm and oral communications. Emphasis on clarity and intelligibility. Practical work in aural comprehension. Prerequisite: Designation by speech testing committee. (Formerly numbered Speech Arts 1-X.)

2. Oral Communication for International Students (2) I

Oral expression; obtaining, organizing material; outlining; pronunciation. May substitute for Speech Communication 3 or 4. (Formerly numbered Speech Arts 1-Y.)

3. Oral Communication Laboratory (1) I, II

Two hours of laboratory.

Individual laboratory training on specific speech problems. Students are admitted by means of a test administered by the department.

4. Voice and Articulation (3) I, II

Vocal and articulatory dynamics as bases of standard and non-standard oral language patterns. Practice in recognition and recall of such patterns.

5. Survey of Audiology (2) I

Audiology in diagnosis and rehabilitation of hearing impairment, medical practice, hearing conservation and research. Fifteen hours of observation required. (Formerly numbered Speech Arts 71.)

6. Language, Speech and Hearing Disorders (3) I, II

Normal growth and development and its relationship to language, speech and hearing development and disorders, covering all areas of exceptionality. Twenty-five hours of observation or project required. (Formerly numbered Speech Arts 70.)

7. Management of Clinical Activities (1) I, II

Formerly Speech Pathology and Audiology 101.

Assisting in the operations of the speech and hearing clinic. Maximum credit two units.

105. Language and Speech Development and Disorders (3) I, II

Normal development of speech and language; prevention and remediation of communication disorders commonly found in the classroom. For students not majors in speech pathology and audiology.

120. Phonetics (3) I, II

Auditory and kinesthetic analysis of the sounds of the English language. Problems of foreign and bilingual dialect. (Formerly numbered Speech Arts 100.)

121. Anatomy, Physiology and Pathology of Speech (3) I, II

Prerequisite: Speech Pathology and Audiology 6.

Anatomy, physiology and pathology of speech. Survey of aphasia, cerebral palsy, cleft palate, voice disorders, including study of multiply handicapped child.

122. Functional Communication Disorders (3) I

Prerequisites: Speech Pathology and Audiology 6 and 121.

Speech disorders of emotional etiology, including stuttering. Genetic and cultural aspects of speech and language; phenomena of human communication, including theories of learning and behavior. Relation between disorders of personality and difficulties in communication.

123. Mechanics of Speech Production (3) I

Two lectures and two hours of laboratory.

Prerequisite: Psychology 50.

Functional anatomy of head, neck and thorax including laboratory exercises and demonstrations of charts, models, histological materials and cadavers. (Formerly numbered Speech Arts 172.)

124. Methods of Speech Therapy (3) I

Prerequisites: Speech Pathology and Audiology 6 and 121.

Application of theories of learning to techniques in treatment of specific speech and language disorders with emphasis on problems of articulation, voice, and foreign dialect. Demonstrations.

126. Clinical Practice in Speech Pathology (1-3) I, II, S

Prerequisites: Speech Pathology and Audiology 120, 121, and three upper division units in speech pathology and audiology.

Supervised practice with representative speech problems. Maximum combined credit, eight units for Speech Pathology and Audiology 126 and 145. One unit represents 26 hours of direct clinical practice.

127. Diagnostic Methods in Speech Pathology (3) I, II

Prerequisites: Speech Pathology and Audiology 120, 121, 123, and 140, and credit or concurrent registration in Speech Pathology and Audiology 126.

Principles and procedures in the assessment and prognosis of communication disorders to include delayed speech and mental retardation. Case histories, testing, interviewing, and clinical reporting. Child, parent, and teacher counseling.

128. Diagnostic Practicum in Speech Pathology (3)

Prerequisite: Speech Pathology and Audiology 127.

Supervised clinical practice in diagnostic methods. Experience in multi-disciplinary assessment. Practicum minimum of six hours.

129. Speech Therapy in the Public Schools (3) I

Prerequisites: Speech Pathology and Audiology 6 and 121.

Knowledge, goals, organization, procedures in public education as related to speech and hearing; conducting surveys; preparing reports. (Formerly numbered Speech Arts 170B.)

130. Family Communication Dynamics (3) S

Prerequisites: Speech Pathology and Audiology 122 and 126.

The communication environment in the home. Parent-child interaction in relation to the origin and alleviation of functional and organic speech disorders.

131. Language Structure (3)

Prerequisite: Speech Pathology and Audiology 6.

Systematic study of the design features of language as they relate to communication behavior. The primary focus is the role of language structure in disordered communication.

132. Assessment of Language Disorders (3) I, II

Prerequisite: Speech Pathology and Audiology 131.

Identification of semantic and structural features of language.

133. Clinical Practice in Public Schools (4) I, II

Clinical practice in elementary or secondary schools or community colleges in speech pathology. Applies only toward Restricted Credential, Speech and Hearing Specialist.

140. Audiometry: Principles (3) I, S

(Same course as Education 177)

Prerequisite: Psychology 50.

Anatomy and physiology of the human ear, theories of hearing, physics of sound, medical aspects, pathology and surgery of the ear, survey of current audiometric techniques. (Formerly numbered Speech Arts 171A.)

141. Audiometry: Application (3) II

Two lectures and two hours of laboratory.

Prerequisite: Speech Pathology and Audiology 140.

Tuning fork assessment, speech testing, masking, tests for nonorganic and for sensorineural hearing loss, industrial audiometry and hearing aid evaluation. (Formerly numbered Speech Arts 171B.)

142. Techniques of Audiometry (1-3) I, II

Three hours of laboratory per unit.

Prerequisite: Credit for or concurrent registration in Speech Pathology and Audiology 140.

Provides the laboratory experience necessary for the California School Audiometrist Certificate when taken concurrently with 171A. Duplicates classic auditory experiments when taken in conjunction with 143 or 244. Maximum credit three units. (Formerly numbered Speech Arts 171C.)

143. Hearing Amplification (3) II

Prerequisites: Speech Pathology and Audiology 140 and 141.

Specific application of amplification for rehabilitation of the impaired hearing mechanism; devices, methods for their evaluation, historical perspective and practical considerations. (Formerly numbered Speech Arts 175.)

145. Clinical Practice in Audiologic Assessment (1-3) I, II, S

Formerly Speech Arts 180B, Field Work in Clinical Practice in Testing Hearing.

Prerequisite: Speech Pathology and Audiology 141.

Supervised procedures with pure tone, speech, and special audiologic testing. Maximum combined credit eight units for 126, 145, and 146. One unit represents 26 hours of direct clinical practice.

146. Clinical Practice with Hard of Hearing (1-3) I, II, S

Prerequisite: Speech Pathology and Audiology 151.

Supervised practice with hard of hearing clients at San Diego State. Maximum credit eight units for 126, 145, and 146. One unit represents 26 hours of direct clinical practice.

150. Education of Deaf Children (3) I

Educational programs, services and resources for hearing impaired, historical background, philosophy, sociological and psychological problems. (Formerly numbered and entitled: Speech Arts 169, Education of Hearing Impaired Children.)

151. Speech Reading and Auditory Training (3) I, II

Prerequisites: Speech Pathology and Audiology 121 and 140.

Theory and methods of speech reading; auditory training techniques including survey of amplification systems. Twenty-six hours observation in programs for deaf, severely hard of hearing.

152. Speech Skills for the Deaf (3) I

Prerequisites: Speech Pathology and Audiology 121 and 150.

Theory and methods of teaching speech to the deaf. Twenty-six hours of observation in programs for deaf, severely hard of hearing. (Formerly numbered and entitled: Speech Arts 178B, Communication Skills for the Deaf.)

153. Language Skills for the Deaf (3) I

Prerequisites: Speech Pathology and Audiology 121 and 150.

General theoretical framework of language development; linguistic problems inherent in deafness. Principles and methods of teaching language to the deaf. Twenty-six hours of observation in programs for deaf and severely hard of hearing.

154. Physiological Phonetics (3)

Prerequisite: Speech Pathology and Audiology 120 or 152.

Physiology underlying the production of continuing speech including transitional movements, based upon a syllabic concept.

156. Field Work with the Deaf (1-3) I, II

Prerequisites: Speech Pathology and Audiology 151, 152, and 153.

Supervised experience in auditory training, lipreading, speech therapy and language building, with individual cases. Maximum credit six units.

157. Clinical Practice with the Deaf (1-2) I, II

Prerequisites: Speech Pathology and Audiology 151, 152, and 153.

Supervised therapy with representative deaf problems in the San Diego State Speech and Hearing Clinic. Maximum combined credit six units for 156 and 157.

190. Workshop in Speech Pathology and Audiology (1-3) I, II

Study of some problem in speech pathology or audiology. Maximum credit six units. (Formerly numbered Speech Arts 109.)

198. Selected Topics in Speech Pathology and Audiology (1-3) I, II

Prerequisite: Twelve units in speech pathology and audiology.

Specialized study of selected topics from the area of speech pathology and audiology. Maximum credit six units.

200. Research and Bibliography (3)**201. Voice Science (3)****202. Problems of Aphasia (3)****203. Problems of Cerebral Palsy (3)****204. Problems of Cleft Palate (3)****205. Problems of Stuttering (3)****206. Problems of Voice Pathology (3)****226. Advanced Clinical Practice in Speech Pathology (1 or 2)****228. Advanced Diagnostic Methods in Speech Therapy (3)****240. Medical Audiology (3)****244. Audiology (3) I****245. Advanced Clinical Practice in Audiologic Assessment (1-2)****246. Advanced Clinical Practice with the Hard of Hearing (1-2)****249. Seminar in Audiology (3)****256. Advanced Field Work with the Deaf (1-3)****257. Differential Diagnosis of the Hearing Impaired (3) I****298. Special Study (1-3)****299. Thesis or Project (3)**

Telecommunications and Film

In the College of Professional Studies

Faculty

Professors: Jones, K., Lee, R. (Chairman)

Associate Professors: Jameson, Madsen, Wylie

Assistant Professors: Anderson, H., Johnson, E. B., Johnson, J., Meador, T.

Lecturer: McMullen, J. L.

Offered by the Department

Master of Arts in radio-television.

Major in radio-television, with the A.B. in applied arts and sciences.

Major in radio-television, with the B.S. in applied arts and sciences.

Major in drama, with emphasis in design for television. *See* Drama.

Minor in radio-television.

Major in Radio-Television

With the A.B. in Applied Arts and Sciences

The A.B. degree is designed for students interested in developing a more liberal education as they develop competency in, and understanding of, radio, television, and film. The A.B. degree permits flexible programs utilizing courses in and out of the department which will prepare students in such broad areas as design for television and film, media communications theory, broadcast advertising, instructional radio and television, and the like.

A minor is required with this major.

Preparation for the major. Telecommunications and Film 1, 3, 10, 20, 30, 67 and 83. (21 units.)

Major. A minimum of 24 upper division units in telecommunications and film to include Telecommunications and Film 101 or 105, 162, 196 and fifteen units of electives selected with the approval of the department. No more than 48 units in telecommunications and film may be counted toward the 124 units required for graduation.

With the B.S. in Applied Arts and Sciences

The B.S. degree is designed to prepare students for professions in radio, television, and film or for occupations where extensive knowledge of these media is required.

Preparation for the major. Telecommunications and Film 1, 3, 10, 20, 30, 67 and 83. (21 units.)

Major. A minimum of 36 upper division units to include Telecommunications and Film 162 and 196, a core professional sequence, and a minimum of six units in an allied professional sequence.

Core Professional Sequence.

TV Production: Telecommunications and Film 101 or 105, 110, 156, 183, 184. (18 units.)

Management: Telecommunications and Film 101, 103, 105, 130, and Psychology 122. (15 units.)

Film: Telecommunications and Film 101 or 105, 110, 150, 156, 168. (17 units.)

Allied Professional Sequences. (Courses taken in Core Professional Sequences cannot be counted toward the Allied Professional Sequence.)

Advertising. Telecommunications and Film 103, Business Administration 150, 153, and Journalism 153.

Art. Art 107, 114A, 114B, 190, and Industrial Arts 115.

- Communication. Speech Communication 135, 193, Journalism 117, 121, and 162.
- Criticism. Humanities 138, Music 151, Philosophy 142, Comparative Literature 152A, 152B, and Speech Communication 195.
- Education. Telecommunications and Film 170, Education 101, 111, and 144.
- Information Systems. Business Administration 184, 185, 186, and 188.
- International Media. Telecommunications and Film 108, 163, and Journalism 118.
- Management. Telecommunications and Film 101, Business Administration 140, 143 and 145.
- News. Telecommunications and Film 105, 112, and Journalism 102, 124, and 125.
- Performance. Telecommunications and Film 180, 181, and Speech Communication 108.
- Playwriting. Telecommunications and Film 110, Drama 120, 122, and English 171.
- Scene Design. Telecommunications and Film 150, 156, and Drama 140A and 148.

Minor in Radio-Television

The minor consists of 15 units in telecommunications and film to include Telecommunications and Film 1 and 3, and at least six units in upper division courses.

1. Backgrounds in Broadcasting (3) I, II

Theory and operation of the broadcasting industry to include the history and regulation of broadcasting in the U.S., the social and economic setting of American broadcasting and the organization of commercial and educational radio and television stations. (Formerly numbered Speech Arts 80.)

3. Technical Operations for Broadcasting (3) I, II

Two lectures and more than three hours of scheduled activity.

Control room and studio techniques necessary for radio and television operation. Includes camera operation, video control, television lighting, television recording, and operation of audio equipment. Students work on crews of KPBS-FM and TV, and ETV productions. (Formerly numbered Speech Arts 81.)

10. Broadcast Writing (3) I, II

Two lectures and more than three hours scheduled activities.

Theory and practice in writing materials for oral presentation. Problems of timing and pacing, conversational expression, and word color. Students provide continuity for KPBS-FM. (Formerly numbered Speech Arts 79.)

20. Introduction to Photography (3) I, II

(Same course as Industrial Arts 40.)

One lecture and six hours of laboratory.

A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. Not open to students with credit in Journalism 50. (Formerly numbered Speech Arts 85.)

30. Radio Production (3) I, II

Two lectures and more than three hours of scheduled activity.

Prerequisite: Telecommunications and Film 3.

Theory of radio production augmented by practice in program planning and production for KPBS-FM. (Formerly numbered Speech Arts 82.)

32. Workshop in Educational Radio Broadcasting (6) S (9 weeks)

Practice and theory in educational radio broadcasting operations, to include program planning, staff administration, and announcing. Students in the workshop will function in staff duties for KPBS-FM. Offered jointly with Telecommunications and Film 132. Not open to students with credit for Telecommunications and Film 132. (Formerly numbered Speech Arts 44S.)

56. Staging and Art for Television and Film (3) I, II

Two lectures and three hours of laboratory.

Technical practices, aesthetic considerations, and organization of production for television and film. (Formerly numbered and entitled: Speech Arts 56, Dramatic Production.)

67. Cinema as Art and Communication (3) I, II

Prerequisite: Sophomore standing.

An appreciative survey of cinema, with emphasis upon the feature film and the documentary. Historical and stylistic influences upon the aesthetic values and social implications of cinema. Illustrated by screen examples. (Formerly numbered Speech Arts 67.)

70. Broadcasting Activities for Schools (3) I

Two lectures and three hours of scheduled activity.

The planning and production of radio and television broadcasts. Designed for students interested in handling broadcast activities in speech and drama classes and workshops for high schools and junior colleges. Not open to students with credit in Telecommunications and Film 1. (Formerly numbered Speech Arts 86.)

83. Television Production and Directing (3) I, II

Two lectures and more than three hours of scheduled activity.

Prerequisites: Telecommunications and Film 3 and 10.

Theory and practice in the skills and knowledge of television production. Includes basic program types, responsibilities of director, and director's relationships to production staff. (Formerly numbered Speech Arts 83.)

90. Broadcast and Film Performance (3) I, II

Two lectures and more than three hours of scheduled activity.

Prerequisites: Drama 10 or Speech Communication 11A, and Drama 30.

Preparation and delivery of materials before the microphone and camera. Participation in productions for KPBS-FM, KPBS-TV, ETV, ITV and motion pictures. (Formerly numbered Speech Arts 88.)

101. Broadcast Management (3) I, II

Prerequisites: Telecommunications and Film 1, 30, and 83.

Administration and organization of radio and television, including radio and television as advertising media, broadcasting research, station organization, promotion and sales, and current developments in radio and television as mass media. (Formerly numbered Speech Arts 181.)

103. Broadcast Advertising (3) I

Prerequisites: Two courses in broadcasting or journalism.

Theory, procedures, and the role of broadcast advertising, including marketing and media research, campaign planning, media strategy, time purchasing, and evaluation.

104. Broadcast Commercial Practices (3) II

Prerequisites: Telecommunications and Film 30, 83, 103, and permission of instructor.

Planning and execution of broadcast advertising and promotion campaigns; creative strategy and production techniques; use of research; campaign evaluation.

105. Regulation of Broadcasting (3) I, II

Prerequisites: Telecommunications and Film 1, 30, and 83.

Responsibilities of broadcasters as prescribed by law, governmental policies and regulations, and significant court decisions. (Formerly numbered Speech Arts 120.)

108. International Broadcasting (3) II

Prerequisite: Telecommunications and Film 105.

Comparative study of broadcasting in various world areas; economic, social, and political determinants of broadcasting patterns. (Formerly numbered Speech Arts 121.)

110. Writing and Producing for Broadcasting and Film (3) I, II

Prerequisites: Telecommunications and Film 1, 30, and 83.

Scripting of dramatic and documentary forms, to include the development of original materials and adaptations for the broadcast media and film, as well as problems in the post-writing process of preparing scripts for production, and the development of program and series ideas. (Formerly numbered Speech Arts 186.)

112. Radio and Television News (3) I, II

(Same course as Journalism 104)

Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures and kinescopes; filming, editing and scripting news on motion pictures; using recorders to report special events. (Formerly numbered Speech Arts 187.)

130. Radio Programming (3) II

Two lectures and more than three hours of scheduled activity.

Prerequisites: Telecommunications and Film 1 and 30.

Formats, policies, production practices, and research in modern programming. Student work is broadcast on KPBS-FM. (Formerly numbered Speech Arts 146.)

132. Workshop in Educational Radio Broadcasting (6) 5 (9 weeks)

Practice and theory in educational radio broadcasting operation to include program planning, staff administration, and announcing. Students in this workshop will function in staff duties for KPBS-FM. Offered jointly with Telecommunications and Film 32. (Formerly numbered Speech Arts 144S.)

150. Lighting for Television and Film (3) I, II

Two lectures and three hours of laboratory.

Theory and application of such aspects as color temperature, light sources and film emulsions, filters and design of values and colors, and factors of electronic transmission. Work on KPBS-TV, ETV, CCTV, and formal films. (Formerly numbered and entitled: Speech Arts 145A-145B, Stage Lighting.)

156. Advanced Lighting and Staging for Television and Film (4) I, II

One lecture and more than nine hours of scheduled activity.

Prerequisites: Telecommunications and Film 3, 20, 56.

Production elements of television and film, to include lighting and staging techniques, art and graphics, scene design and scene decoration. Experience in various technical and production specialties of television and film, as demonstrated principally by work for KPBS-TV and ETV. (Formerly numbered Speech Arts 182.)

162. Film Techniques (3) I, II

Two lectures and three hours of scheduled activity.

Prerequisite: Telecommunications and Film 20.

Principles of film theory, and practice in cinematography and editing; use of motion picture equipment. Technique and theory as they apply to the several filmic forms. Preparation of filmed materials. (Formerly numbered Speech Arts 167.)

163. International Cinema (3) I

Prerequisite: Telecommunications and Film 67.

Foreign feature films as expressions of national attitudes. (Formerly numbered Speech Arts 189.)

165. Animated Film Techniques (3) I, II

Screening of representative examples and production of a filmograph or animated motion picture. (Formerly numbered Speech Arts 197.)

168. Film Production (4) I, II

One lecture and nine hours of scheduled activity.

Prerequisite: Telecommunications and Film 162.

Advanced practicum in film production. Studio and location work in the preparation of filmed materials, and complete nontheatrical films. (Formerly numbered Speech Arts 168.)

170. Educational Broadcasting (3) II

Prerequisites: Telecommunications and Film 1, and Education 101.

The role of educational broadcasting in the United States; social and educational impact of noncommercial radio and television; introduction to production techniques for instructional television; and procedures for the utilization of television in the classroom. (Formerly numbered Speech Arts 185.)

172. Workshop in Educational Television (6) S

(Same course as Education 143-S)

Open to teachers and students interested in instruction by television.

The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated. (Formerly numbered Speech Arts 143S.)

180. Directing Television and Film Drama (3) I, II

Planned for prospective directors of plays for television and film. The student will become acquainted with principles, procedures and methods. (Formerly numbered and entitled: Speech Arts 159, Dramatic Production Directing.)

181. Acting for TV and Film (3) I, II

Prerequisite: Drama 55A.

Interrelationship of acting and the various media—radio, television, film. Experience in film and television productions. (Formerly numbered Speech Arts 123.)

183. Advanced Programing and Development for Television (4) I, II

One lecture and more than nine hours of scheduled activity.

Prerequisites: Telecommunications and Film 110, 162, and consent of instructor.

The development of program ideas into formats for television productions of all types. Experience in developing and producing programs for CCTV and ETV. (Formerly numbered Speech Arts 183.)

184. Advanced Television Directing (4) I, II

One lecture and more than nine hours of scheduled activity.

Prerequisites: Telecommunications and Film 1, 56, 83, 162, 180 and consent of instructor.

Presentational techniques and individual projects in the direction and production of television programs for CCTV and ETV. (Formerly numbered Speech Arts 184.)

195. Workshop in Broadcasting (1-3) I, II

Study of some problem in radio, television or film. Maximum credit six units. (Formerly numbered and entitled Speech Arts 109, Workshop in Speech.)

196. Senior Project in Telecommunications and Film (3) I, II

Limited to students in Telecommunications and Film.

Student must demonstrate proficiency in a phase of broadcasting from development of a program idea through production for either radio, television, or film. A research paper may be substituted at the discretion of the adviser if the project chosen does not involve production. (Formerly numbered and entitled Speech Arts 188, Senior Project in Broadcasting.)

198. Selected Topics in Telecommunications and Film (1–3) I, II

Prerequisite: Twelve units in Telecommunications and Film.

Specialized study of selected topics from the areas of telecommunications and film. May be repeated with new content. Maximum credit six units.

200. Research and Bibliography (1)**201. Seminar in Broadcast Management (3)****202. Seminar in Broadcast Advertising Problems (3)****203. Seminar in History of Broadcasting (3)****205. Mass Communications Research (3)****210. Seminar in Writing for Broadcast and Film (3)****212. Criticism of Broadcasting and Cinema (3)****268. Directing the Dramatic Film (3)****270. Seminar in Educational Broadcasting (3)****272. Seminar in Mass Communication Theory (3)****273. Mass Communications Message Design (3)****284. Seminar in Programing and Production (3)****298. Special Study (1–3)****299. Thesis or Project (3)**

Women's Studies

Administered by the Dean of the College of Arts and Letters

Faculty

Associate Professor: Salper

100. Women in Comparative Cultures (3) I, II

Women's life styles (value systems, self-image, and world view) from least to most differentiated societies. Impact of women's autonomy and influence on different family models, kinship systems, and economic patterns. Women's roles and behavior in cooperative versus individualistic societies.

110. Socialization Process of Women (3) I, II

Role socialization of women; the effects of formal and informal social, economic, and political institutions upon role socialization from infancy to old age.

120. Self-actualization of Women (3) I, II

Self-actualization psychology, emphasizing individual uniqueness and the maximization of human potential; theories of human behavior as they are applied to women; development of women's self-concept in American society.

130. Contemporary Issues in the Liberation of Women (3) I, II

The current movement to win greater political, social, and economic equality for women; its development and continuing evolution. Maximum credit six units.

140. Women in History (3) I, II

A survey of the social, cultural, economic, and intellectual history of women; origins of women's roles.

150A-150B. Women in Literature (3-3) I, II

Semester I: images, roles, and identities of women found in literature, their sociological and political implications. Semester II: famous female writers; the treatment of women as literary artists.

160. Human Sexuality (3) I, II

Biological criteria in sex role determination; the relationship of sexual mores and customs to a person's self-concept of sexuality; the relevance of current scientific investigations of the psycho-physiology of human sexual response.

180. Status of Women under Various Economic Systems (3) I, II

Historical and contemporary institutional factors influencing the social and political status of women under various economic systems; economic implications of alternatives to expected patterns of women's behavior and institutional arrangements.

190. Women and Education (3) I, II

The educational process and female role socialization; research into personnel policies and curriculum. New learning methods and environments, e.g., women's studies programs, child care centers, and "free" schools.

198. Field Experience (3) I, II

Prerequisite: consent of instructor.

Exploration and analysis of sex discrimination in public and private agencies in the San Diego area as they relate to women through supervised experience and observation; understanding principles and utilizing skills in organizing and effecting change. Maximum credit six units.

Zoology

In the College of Sciences

Faculty

Emeritus: Harwood

Professors: Bohnsack, Carpenter, Crawford, R., Crouch, Etheridge (Chairman), Huffman, Hunsaker, Olson, A., Wilson, W.

Associate Professors: Atkins, Cohn, Collier, G., McLean, Norland, Plymale

Assistant Professors: Catlett, Chen, Glenn, Jackson, C., Krekorian, Lillegraven

Lecturer: Kaston

Offered by the Department

Master of Arts and Master of Science in biology, with an emphasis in zoology.

Major in zoology with the A.B. in liberal arts and sciences.

Major in zoology with the B.S. in applied arts and sciences.

Teaching major in the biological sciences, with specialization in secondary teaching.

Minor in zoology.

Major in Zoology

With the A.B. in Liberal Arts and Sciences

For a foreign language, French, German, or Russian is strongly recommended.

Preparation for the major. Biology 1, 2, and 15; Zoology 50 and 60 or 106; Chemistry 1A-1B and 11 or 12; Physics 1A-1B or 2A-2B; and Mathematics 21 or 40. (38-42 units.) Recommended: Mathematics 22 or 50, and Physics 3A and 3B if 2A-2B were taken.

Major. A minimum of 24 upper division units in biology, botany, microbiology and zoology to include the following: Biology 101 or Zoology 140; Biology 110 and 155; Botany 100, 101, 102, or 103; Biology 101 or 103, or Microbiology 101, or Zoology 108; Biology 156 or Zoology 102, or 103.

With the B.S. in Applied Arts and Sciences

Preparation for the major. Biology 1, 2, and 15; Zoology 50, and 60 or 106; Chemistry 1A-1B and 11 or 12; Physics 1A-1B or 2A-2B; and Mathematics 21 or 40. (38-42 units.) Recommended: Mathematics 22 or 50, and Physics 3A and 3B if 2A-2B were taken.

Major. A minimum of 36 upper division units, 28 of which must be in biology, botany, microbiology and zoology, to include the following: Biology 101 or Zoology 140; Biology 110 and 155; Botany 100, 101, 102, or 103; Biology 101 or 103, or Microbiology 101, or Zoology 108; Biology 156 or Zoology 102, or 103. Units to complete the major must be selected with the approval of the adviser; up to 8 upper division units can be in chemistry, geology, mathematics and physics.

Teaching Major in the Biological Sciences

For the Standard Teaching Credential

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All courses in the major must have prior approval by the adviser for biological sciences teaching programs.

Postgraduate Year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences.

Minor in Zoology

The minor consists of 15 units in biological sciences, six of which must be upper division. Approval of the zoology adviser is required.

8. Human Anatomy (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: An introductory course in high school or college biology or zoology.

Systems of the human body and their interrelationships.

50. Invertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Structure, function, relationships and significance of invertebrate animals as shown through a study of selected invertebrate types.

60. Vertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

An introductory course in the biology of the vertebrates with emphasis on the vertebrate organism as a whole: anatomy, physiology, development and evolution.

102. Invertebrate Embryology (3)

Two lectures and three hours of laboratory.

Prerequisite: Zoology 50.

Description and experimental analysis of the development of invertebrates.

103. Embryology (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Zoology 50, 60, or 106.

Studies in comparative gametogenesis, morphogenesis, and reproductive physiology.

106. Comparative Anatomy of the Vertebrates (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Dissection, study and comparison of organ systems of typical vertebrates.

108. Histology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2. Recommended: Zoology 8 or 60 or Microbiology 101.

The microscopic structures and differentiation of tissues and organs of the vertebrates, especially mammals.

112. Marine Invertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Zoology 50 and Biology 110.

Ecology, morphology, behavior, and physiology of marine invertebrates. Frequent field trips to local marine environments.

114. Natural History of the Vertebrates (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: One semester of college biology.

Natural history, distribution and classification of vertebrate animals; emphasis on local forms. Not open to zoology majors.

115. Ichthyology (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Zoology 60 or 106.

Evolution, interrelationships, structure, identification, habits, and ecology of fishes.

116. Herpetology (4) I

Two lectures and six hours of laboratory.

Prerequisites: Consent of instructor.

The origin, evolution, distribution, and systematics of amphibians and reptiles of the world.

117. Ornithology (4) II

Two lectures and six hours of laboratory or field excursions, and a field project.

Prerequisites: Biology 1 and 2 and consent of instructor.

The study and identification of birds, especially those of the Pacific Coast and the San Diego region.

118. Mammalogy (4) I

Two lectures and six hours of laboratory.

Prerequisites: Zoology 60 or 106.

The evolution, systematics, distribution, and ecology of mammals of the world.

119-S. Field Zoology (4) S

Two lectures and six hours of laboratory.

Prerequisite: A course in college biological science.

Observational methods; collecting techniques; identification, ecology, and behavior of southern California animals. Primarily for students not majoring in the biological sciences.

121. General Entomology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Structure, physiology, natural history, and classification of insects.

122. Special Topics in Entomology (3)

Two lectures and three hours of laboratory.

Prerequisite: Zoology 121.

Advanced treatment of some phase of entomology such as physiology, morphology, systematics or ecology, topic to be announced in the class schedule. Maximum credit nine units, not more than three of which may apply to a master's degree.

123. Immature Insects (3) II

Two lectures and three hours of laboratory.

Prerequisite: Zoology 121.

Collection, preservation, identification, and biological study of the immature stages of the different insect orders. Course designed to meet the needs of students specializing in invertebrate zoology, agricultural and medical entomology, parasitology, and systematics.

124. Insect Ecology (4)

Two lectures and six hours of laboratory.

Prerequisites: Biology 110, and Botany 100 or 103. Recommended: Zoology 50, 105, or 121.

Ecological principles as applied to insects, including consideration of crop ecosystems in relation to insect and mite outbreaks.

125. Economic Entomology (4)

Two lectures and six hours of laboratory.

Prerequisite: Zoology 50 or 121 (preferred), or Botany 100, 103, or 162.

Course designed for students of agriculture and horticulture. Emphasis is placed on determination and control of insects affecting plants. Quarantine measures are also studied.

126. Medical Entomology (3) II

Prerequisite: Zoology 50, 60, or 121, or Microbiology 101.

The role of insects and other arthropods in transmission and causation of human diseases.

127. Principles of Pest Management (3)

Two lectures and three hours of laboratory.

Prerequisites: Botany 100, 103, or 162; and Zoology 121, 124. Recommended: Zoology 125.

Systematic analysis and synthesis of all suitable techniques known to reduce and maintain pest populations at levels below economically important injury in forestry and agriculture, based on firm ecological principles.

128. Parasitology (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Zoology 50 or Microbiology 101.

Study of animal parasites with special reference to those of man. Laboratory including identification of important parasites of man, and collection and preservation of local forms.

130. Advanced Invertebrate Zoology (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Zoology 50.

Selected topics in advanced invertebrate zoology. May be repeated with new content for a maximum of six units.

135. Scientific Illustration (3)

Two lectures and three hours of laboratory; field trips.

Preparation of illustrative materials, inked drawings, charts, lettering, models, still and movie photography, and photomicrography.

140. Physiological Zoology (4) I, II

Three lectures and three hours of laboratory.

Prerequisites: Zoology 60 or 106, and Chemistry 12.

A comparative and evolutionary study of the functions of organ systems and their environmental significance.

145A-145B. Experimental Animal Surgery (2-2) I, II

One lecture and three hours of laboratory.

Prerequisites: A course in vertebrate anatomy and a course in animal physiology and consent of instructor; 145A is prerequisite to 145B.

Fundamental principles of animal care, disease prevention, and aseptic surgery.

150. Marine Biology (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 1.

An introduction to marine organisms and their environment. Not open to students with credit for Zoology 50 or Biology 110.

155. Principles of Taxonomy, Systematics and Phylogeny (4) II

Two lectures and six hours of laboratory.

Prerequisites: Any one of the following: Zoology 50, 60, 106, Botany 101, 102, 103.

Basis for the classification of organisms. Modern concepts and their application in zoology. Specific problems in laboratory and field.

160. Vertebrate Paleontology (4) II

Two lectures and six hours of laboratory.

Prerequisite: Zoology 106.

Advanced studies in the evolution of vertebrates, including relations to earth history and topics in paleoecology and functional morphology. Laboratory emphasizes field and preparatory techniques and identification of mammalian fossils.

170. Animal Behavior (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Zoology 50 and 60 or Psychology 40, 50, and consent of instructor.

Biological bases of animal behavior with emphasis on the ethological approach, including the evolution and adaptive significance of behavior.

172. Neurobehavior (4) II

Two lectures and six hours of laboratory.

Prerequisites: Zoology 170 or Psychology 113 or 114, and consent of instructor.

Evolution of the senses and central nervous system and their significance in animal behavior. Invertebrates and lower vertebrates will be emphasized. Advanced laboratory training in neurophysiology and psychobiology.

190. Senior Investigation and Report in Invertebrate Zoology (2)

Prerequisite: Consent of instructor.

Investigation and reports on the current literature of invertebrate zoology.

191. Senior Investigation and Report in Vertebrate Zoology (2)

Prerequisite: Consent of instructor.

Investigation and reports on the current literature of vertebrate zoology.

198. Methods of Investigation (2) I, II

One discussion and three additional hours to be arranged.

Prerequisite: Consent of instructor.

Selection and design of individual research in zoology; oral and written reports. Four units maximum credit for Zoology 198 or a combination of this course with Biology or Microbiology 198.

200. Seminar (2 or 3)**201. Seminar in Marine Zoology (2)****206. Seminar in Vertebrate Morphology (2)****209. Seminar in the Biology of Cold-blooded Vertebrates (2)****210. Seminar in the Biology of Warm-blooded Vertebrates (2)****211. Animal Energetics (3)****212. Advanced Marine Invertebrate Zoology (3)****290. Bibliography (1)****291. Research Techniques (3)****297. Research (1-3)****298. Special Study (1-3)****299. Thesis (3)**

Professional Schools: Courses and Curricula

School of Business Administration

Robert R. Hungate, *Dean*; Maurice L. Crawford, *Associate Dean*;
Thomas R. Wotruba, *Assistant Dean for Graduate Studies*

Accreditation

The School is a member of the American Association of Collegiate Schools of Business.

Bureau of Business and Economic Research

The Bureau of Business and Economic Research is an organized research activity serving the needs of the School. Its chief purpose is to facilitate research by faculty and students in the areas of economics and business. For further information, see "Research Bureaus" in the catalog section, *Introducing San Diego State*.

Faculty

Accounting Department

Emeritus: Brown, E. P., Wright

Professors: Brodshatzer, Ferrel, Harned (Chairman), Odmark, Scorgie, Snudden

Associate Professors: Bailey, A., Dodds, Wade, Williamson, J.

Assistant Professors: Lightner, Purcell

Finance Department

Professors: Chapman, Hippaka, Hungate, Nye, Reznikoff

Associate Professors: Fisher, H., Reints (Chairman), Wijnholds, H. W.

Assistant Professors: Block, Dee, Fisher, R. T., Hird, Hutchins, Neuberger, Schmier, Shutt, Smith, Charles R., Vandenberg, Yankey

Information Systems Department

Professors: Archer, Crawford, M., Gibson, Langenbach (Chairman), LeBarron, Pemberton, Straub

Assistant Professors: Chrysler, Mahoney, Spaulding, Sponseller, Tilaro

Lecturer: Brereton

Management Department

Emeritus: Torbert

Professors: Belcher, Hampton, Peters, Pierson, Srbich

Associate Professors: Atchison (Chairman), Galbraith, Ghorpade, Mitton, Sherard

Assistant Professors: Price, K., Steinhurst, Walker, J.

Marketing Department

Emeritus: De Julien

Professors: Barber, Darley, Hale, Sharkey, Wotruba

Associate Professors: Akers, Haas, McFall, Lindgren (Chairman)

Assistant Professors: Soldner, Vanier

Lecturer: Wijnholds, H. deB.

Offered by the School

Master of Business Administration

Master of Science in Business Administration

B.S. in business administration, majoring in accounting, finance, information systems, insurance, management, marketing, and real estate

Minors in accounting, business management, employee relations, finance, information systems, insurance, marketing, production and operations management, and real estate

Teaching major and minor in business with specialization in secondary teaching

For detailed information on the Master of Business Administration and the Master of Science in Business Administration degrees, see the Graduate Bulletin.

Majors

Accounting

Preparation for the major. Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20 (25 units). Students who expect to use any course in business administration or economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. Thirty-nine upper division units to include Business Administration 100, 102, 106, 126, 132, 150, 190 and Economics 100A or 100B; and 12 units selected from the following: Business Administration 101, 107, 108, 112, 114, 115, 118, 119; Economics 135, 170; one course and only one course each from finance, information systems, management, and marketing.

In addition to units in general education and to upper division units in the major, nine upper division elective units outside of business administration and economics are required. Lower division courses satisfy this requirement when all nine units are in one foreign language.

Finance

Preparation for the major. Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B; Mathematics 20; and Economics 2 or Mathematics 12 (25 units). Students who expect to use any course in business administration or economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. Forty upper division units to include Business Administration 100, 126, 127, 128, 130, 132, 150, 190, Economics 100A, 100B, and 135, at least three units selected from Business Administration 129 and 197, and three units of electives selected from business administration and economics courses with consent of the adviser. Fifty-two units (12 of which must be upper division) must be taken outside business administration and economics.

Information Systems

Preparation for the major. Business Administration 1A-1B, 30A, 80, 83, and 84; Economics 2 or Mathematics 12; Economics 1A-1B; Mathematics 20 and 21 (31 units). Students who expect to use Business Administration 30A or Economics 1A to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. A minimum of 34 upper division units to include Business Administration 102, 126, 132, 135, 150, 184, 185, 186, 187, 188, and 190; six units of electives selected from Business Administration 128, 131, 134, 140, 163, 182, 183, and 189.

General electives. In addition to the requirements stated, the student must select up to 17 units to complete the required total. At least nine of these must be in upper division courses outside of business administration or economics.

Insurance

Preparation for the major. Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B; Economics 2 or Mathematics 12, and Mathematics 20 (28 units). Students who expect to use any course in business administration or economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. Thirty-nine upper division units, to include Business Administration 120, 121, 124, 125, 126, 132, 150, and 190, and 15 units selected from Business Administration 106, 107, 128, 131, 140, 170, 171, 172, 173, 174, 175, Economics 111, 131, 135, 142, 170, 171. Fifty-two units (twelve of which must be upper division) must be taken outside of business administration and economics.

Management

The major in management is offered in three areas of concentration: business management, employee relations, and production and operations management. Students must complete all three of the following requirements.

(1) Professional Curriculum Within the Major Field

Preparation for the major. Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B; Mathematics 12 and 20 (25 units).

Major. Business Administration 102, 126, 131, 132, 134, 135, 140, 145, 149, 150, 190 and Economics 100A (37 units).

(2) Areas of Concentration Within the Major Field

Select one area:

(a) Business Management. Twelve units made up of one upper division three unit course from each of four of the following fields: accounting, business law, economics, employee relations, finance, insurance, marketing, production management, purchasing, and real estate.

(b) Employee Relations. (1) At least six units from Business Administration 141, 142, and 143; and (2) six units from Economics 150, 152, Psychology 105, 121, 124, 133, and Sociology 120. (12 units.)

(c) Production and Operations Management. (1) Business Administration 136 and either 137 or 138; and (2) six units from Business Administration 162, Economics 107, Mathematics 130B, Philosophy 121, 122, Psychology 121, 124. (12 units.)

(3) Pattern Requirements Outside the Department of Economics and the School of Business Administration

A minimum of 16 units of pattern requirements must be taken. These requirements are met by taking a minimum of eight units in the area of Life, Physical, and Social Sciences as indicated in (a) below and a minimum of eight units in the area of Humanities and Fine Arts as indicated in (b) below. These requirements may also be met by completing the two year AFROTC program of upper division aerospace studies courses.

Courses taken to satisfy the requirements shown in (a) and (b) below are in addition to and may not be used to satisfy any requirements in general education nor may they be used to satisfy requirements stated in (1) and (2) above.

(a) Life science, physical science, and social science. A minimum of eight units, to be selected with the approval of the departmental adviser, from *one* department in the College of Sciences or the departments of Geography, Political Science, and Sociology. All upper division courses in the specified departments are suitable as well as the following lower division courses: Chemistry 1A-1B, 4, 5; Mathematics 50, 51, 52; Physics 4A-4B-4C.

(b) Humanities and fine arts. A minimum of eight units, to be selected with the approval of the departmental adviser, from *one* department in the College of Arts and Letters (except Economics, Geography, Political Science, and Sociology) or the College of Professional Studies (except Aerospace Studies, Industrial Arts, and Physical Education). All upper division courses in the specified departments are suitable as well as the following lower division courses: Art 5, 50A-50B, 52A-52B, Music 52, Speech Communication 4, 60, 62, and 64. All courses in a foreign language are acceptable, but at least eight units must be taken in one language.

Marketing

Preparation for the major. Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B; Mathematics 20; and either Economics 2 or Mathematics 12 (25 units.). Students who expect to use any course in business administration or economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. Thirty-seven upper division units to include Business Administration 126, 132, 149, 150, 151, 156, 157, 158, and 190; six units selected from Business Administration 152, 153, 154, 159, 161, 162, 163, 164, 165; and six units selected from Business Administration 102, 134, 135, 140, 145, 185, and 197. In addition to the upper division units in the major and in general education, 12 upper division elective units outside of business administration and economics are required.

Real Estate

Preparation for the major. Business Administration 1A-1B, 30A-30B, 80, 83, Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20 (28 units).

Students who expect to use Economics 1A or Business Administration 30A to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. Thirty-nine upper division units to include Business Administration 126, 132, 140, 150, 170, 171, 172, 173, 174, and 190, Public Administration and Urban Studies, 160; and six to seven units selected from Business Administration 100, 106, 107, 120, 121, 153, 175, Economics 135, 142. Fifty-two units (twelve of which must be upper division) and must be taken outside of business administration and economics.

Minors

These minors are for students whose majors are outside of business administration. They all require Business Administration 1A-1B.

Accounting: 15 units required of which 11 must be upper division, including Business Administration 100.

Business management: 19 units required, including Economics 1A-1B; nine units must be upper division, including Business Administration 132.

Employee relations: 19 units required, including Economics 1A-1B; nine units must be upper division, including Business Administration 132 and 140.

Finance: 16 units required, including Economics 1A-1B and 135, and Business Administration 132.

Information systems: 22 units required, including Mathematics 21, Business Administration 83, 84, 185, 186, and 187.

Insurance: 19 units required, including Business Administration 30A-30B; 120; 121 or 124; and three additional upper division units in business administration.

Marketing: 19 units required, including Economics 1A-1B, Business Administration 150, and six additional upper division units in business administration.

Production and operations management: 19 units required, including Economics 1A-1B, Business Administration 132 and 135, and three additional upper division units in business administration.

Real estate: 19 units required, including Business Administration 30A-30B, 170, and six additional upper division units in business administration.

Teaching Major and Minor

Requirements for the teaching major in business are the same as those for the major in information systems, those for the teaching minor in business the same as those for the minor in information systems. In addition, to prepare for secondary teaching, the student must take in his postgraduate year six units in courses acceptable for the credential. For additional specific requirements for a teaching credential, see "School of Education" in this catalog section.

1A-1B (4) or 1A-1B (2-2). Accounting Fundamentals. I, II

Three hours of lecture and laboratory per two units of credit.

Prerequisite: Business Administration 1A is prerequisite to 1B.

Organizing, recording, and communicating economic information relating to the business entity.

30A. Business Law (3) I, II

Introduction to legal institutions; nature and sources of law; the judicial system; legal concepts and cases involving contracts, agency, and sales.

30B. Business Law (3) I, II

Prerequisite: Business Administration 30A.

Legal concepts and cases to be selected from business organization, negotiable instruments, property, security devices, creditors' rights and bankruptcy, trade regulation, and labor law. Students preparing for public accounting should take Business Administration 118 instead of 30B.

40. The Business Enterprise (3) I, II

Not open to students who are majors or minors in any department of the School of Business Administration.

The business enterprise and its function in society; interrelations of ownership, entrepreneurship, and administration; interactions within the firm and within and among industries.

71. Beginning Typewriting (2) I, II

Four hours.

Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

72. Advanced Typewriting (2) I, II

Four hours.

Application of typewriting skills in solution of typical business problems.

73. Computational Machines Laboratory (1) I, II

Two hours of laboratory.

Laboratory course in figuring and calculating machine principles and operation.

74. Communicative Machines Laboratory (2) I, II

Four hours of laboratory.

Prerequisite: Business Administration 71.

Laboratory course in communication and duplicating machine principles and operation.

75A-75B. Shorthand (3-3) I, II

Five hours of lecture and activity.

Prerequisite: Business Administration 72; 75A is prerequisite to 75B.

Gregg shorthand theory; dictation and transcription.

76. Advanced Shorthand (3) I

Prerequisites: Business Administration 75A and 75B.

Development of speed in writing and transcription.

80. Written Communications in Business (3) I, II

Prerequisite: English 5.

Principles of effective writing applied to business and industrial situations and to the organization and presentation of reports.

83. Information Processing and Computer Programing (3) I, II

Two lectures and three hours of laboratory.

Introduction to concepts of information processing and computer programming.

84. Systems Programming (3)

Prerequisite: Business Administration 83.

The theory and techniques of data manipulation, utilizing a problem-oriented language.

100. Intermediate Accounting (4) I, II

Prerequisite: Business Administration 1B.

Theories and principles underlying financial statements and determination of income of partnerships and corporations.

101. Specialized Accounting Problems (4) I, II

Prerequisite: Business Administration 100.

Problems involved in partnerships, consignments, consolidations, receiverships, foreign exchange, fund accounting, and other specialized areas.

102. Managerial Cost Accounting (4) I, II

Prerequisite: Business Administration 1B.

Management use of accounting data for planning and control; theories and practices of cost accounting, standard cost systems, distribution analysis, and capital budgeting.

106. Income Tax Accounting (4) I, II

Prerequisites: Business Administration 1A and 1B.

Theory and procedures in the preparation of federal and California income tax returns for individuals, partnerships and corporations.

107. Advanced Income Tax Accounting (2) I, II

Prerequisite: Business Administration 106.

Theories of taxation as related to personal holding companies, corporate distributions, liquidation and capital changes; fiduciary return preparation; brief survey of gift, estate and social security taxes.

108. Governmental Accounting (2) I, II

Prerequisite: Business Administration 100.

Principles of fund accounting useful in state and local governmental units, hospitals, colleges, and universities. Comparisons with commercial accounting emphasized. Includes study of budgetary accounting, appropriations, encumbrances, internal checks and auditing procedures.

112. Auditing (4) I, II

Prerequisites: Business Administration 101 and 102.

General principles and concepts of auditing; consideration of the design of accounting systems; duties, ethics, and responsibilities of the auditor; procedures for verification of financial statements; auditor's reports.

114. Accounting Systems (3) I, II

Prerequisite: Business Administration 100 and 102.

General system theory and system terminology. New mathematical and statistical techniques for solving special system problems. Planning, controlling, and reporting procedures will be developed for accounting systems employing the use of digital computers.

115. Accounting Theory (3) I, II

Prerequisites: Business Administration 100 and 102 and one other upper division course in accounting.

Critique of contemporary accounting theory; recommendation for improvement of financial accounting; research in accounting theory.

118. Advanced Business Law (3) I, II

Prerequisites: Business Administration 30A and a major in accounting with at least 9 units in upper division accounting.

Legal concepts and cases involving business organization, negotiable instruments, property, security devices, creditors' rights, bankruptcy, insurance, wills, trusts, estates, and suretyship. Special emphasis on problem-solving techniques. Not open to students with credit in Business Administration 30B.

119. Advanced Accounting Problems (3) I, II

Prerequisite: Business Administration 112.

An intensive review of the accounting principles and procedures covered in the accounting theory and accounting practice sections of the uniform C.P.A. examination prepared by the American Institute of Certified Public Accountants.

120. General Insurance (3) I, II

History of insurance; economic and social implications; principles of insurance contracts; theory of risk; law of large numbers. Survey of all major insurance fields and policies including life, fire, marine, inland marine, casualty and surety bonding.

121. Property and Casualty Insurance (3) II

Prerequisite: Business Administration 120.

All standard forms of insurance except life; includes automobile, liability, workmen's compensation and disability, fire, marine, and inland marine. Legal interpretation of contract coverages; underwriting problems, marketing of insurance, government supervision and control.

124. Life Insurance Principles and Practices (3) I

Prerequisite: Business Administration 120.

Economic and social aspects of life insurance; nature of life insurance and annuity contracts; basic legal principles; theory of probabilities, premiums, reserves, and nonforfeiture values; company operational activities; agency development and management.

125. Estate Planning (3) I, II

Programming fundamentals with emphasis upon economic, actuarial, and legal principles, program coordination and integration with wills; guardianships; estate planning fundamentals; taxation; business life insurance. Analysis of life insurance selling as a career.

126. Fundamentals of Finance (3) I, II

Formerly Business Administration 127.

Prerequisite: completion of lower division course requirements in major or minor.

Objectives of financial management. Financing the business enterprise. Internal financial management. Introduction to the cost of capital, valuation, dividend policy, leverage and the techniques of present value and its applications. Sources of capital.

127. Planning of Capital Expenditures (3) I, II

Prerequisites: Business Administration 126 and credit or concurrent registration in 190.

The capital expenditure decision process. Measuring and evaluating benefits and costs. The cost of capital and the evaluation process. Capital rationing problems. Risk and uncertainty in the decision process. Emphasis on quantitative and computer methods in the decision-making process.

128. Investments (3) I, II

Prerequisite: Business Administration 126.

Investment principles and practices with emphasis upon problems of the small investor, such as tests of a good investment, sources of information, types of stocks and bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and the like.

129. International Business Finance (3) I, II

Prerequisite: Business Administration 126.

The financing of international business transactions; international payments and their environment; international financial institutions.

130. Financial Analysis and Management (3) I, II

Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.

Evaluation of conditions and trends in the money and capital markets. Utilization of financial data as related to the problems of business enterprises. Emphasis on decision-making and research in finance.

131. Law in a Business Society (3) I, II

Prerequisite: Business Administration 30A.

The nature of law as a process of resolving economic disputes and social conflicts. Analysis of the rationale in statutes, judicial decisions, and doctrine. The role of law in the development of business concepts.

132. Fundamentals of Management (3) I, II

Prerequisite: Completion of lower division courses required in the major or minor.

What a manager does, how he selects objectives, organizes essential activities, plans, directs and controls operations; fundamentals which guide a manager's decisions.

134. The Social Environment of Business (3) I, II

Prerequisite: Senior standing.

An interdisciplinary study of American business enterprise in its cultural environment. The foundations of business; historical modifications; present relationship between business and society. The moral and ethical responsibilities of business and the businessman.

135. Fundamentals of Production and Operations Management (3)

Two lectures and three hours of laboratory.

Prerequisite: Business Administration 132.

Theory, concepts and decision analysis related to effective utilization of major factors of production in manufacturing and service industries. Study of production organizations, analytical models and methods, facilities, and design of control systems.

136. Production and Quality Control (3) I, II

Prerequisites: Business Administration 135 and 190.

Forecasting, planning and controlling production flow; techniques for planning and controlling quality of produced and purchased items; emphasis on modern quantitative methods particularly applicable to scheduling and control.

137. Motion and Time Study (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Business Administration 135.

Work simplification through methods improvements; operations analysis; flow charts, calculation of time standards; work and speed analysis; new developments in job timing, standard setting and motion economy study.

138. Systems and Data Analysis (3) I, II

Prerequisites: Business Administration 83 and 132.

The methods and concepts of gathering information, analyzing and reducing data, and preparing accounts and timely reports to management. Unified operations management, employing extensive use of computer technology in the design and operation of systems for managerial efficiency. Not open to students with credit for Business Administration 185.

140. Employee Relations (3) I, II

Prerequisite: Business Administration 132.

Problems of business and industry in dealing with employees, special attention to company and public policy, staffing, employee development, labor relations and employee motivation. Comparisons of current practices to underlying problems and theories.

141. Employee Relations Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Business Administration 140 or Political Science 144, or consent of instructor.

Investigation of employee relations practices and policies. Practice in interviewing, role playing, or in conducting field studies and related personnel research.

142. Wage and Salary Administration (3) I, II

Prerequisite: Business Administration 140.

Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice.

143. Problems in Employee Relations (3) II

Prerequisite: Business Administration 140.

The employee relations function. Analysis of current practices as effective solutions to problems in this area. Guided research into the nature of employment relations.

145. Human Factors in Management (3) I, II

Prerequisite: Business Administration 132 or Political Science 144.

Organizations as social systems; power and authority; communication, motivation and leadership; impacts of technology on management and workers, resistance to change; human needs and the imperatives of management.

149. Business Policy (3) I, II

Prerequisites: Senior standing and consent of instructor.

Formulation and administration of policy; integration of the various specialties in business; development of over-all management viewpoint.

150. Marketing Principles (3) I, II

Prerequisites: Economics 1A and 1B.

Marketing functions, activities of producers, wholesalers, retailers and other middlemen; channels of distribution; integration of marketing activities; price policies; government regulation.

151. Marketing Management (3) I, II

Prerequisites: Business Administration 150 and 190.

The managerial aspects of marketing. The development of marketing strategy and plans with the aid of social science concepts. Integrates the specific elements of the marketing function.

152. Retailing Principles (3) I, II

Prerequisite: Business Administration 150.

Study of retail stores, emphasizing the problems of store managers and merchandising executives; store location, organization, personnel, sales promotion, buying and handling of merchandise, inventory, turnover, and control methods. Problems of profitable operation under changing conditions.

153. Advertising Principles (3) I, II

Prerequisite: Business Administration 150.

Advertising as a sales promotional tool in marketing activities; consumer, market and product analysis; advertising media; preparation of advertisements; measurement of advertising effectiveness; economic and legal aspects of advertising; public relations; advertising campaigns.

154. Marketing Problems (3) I, II

Prerequisite: Business Administration 150.

Complex cases in marketing involving analysis of business situations.

156. Consumer Behavior (3) I, II

Prerequisite: Business Administration 150.

Examination of the nature of markets and of the factors influencing market development and change. Study of the individual consumer's behavior in relation to the selling-buying process.

157. Marketing Research (3) I, II

Prerequisites: Business Administration 150 and 190.

Formal research techniques and analysis for marketing decisions; principles of decision making.

158. Marketing Research Laboratory (1)

Three hours of laboratory.

Prerequisites: Business Administration 157.

Applications of market research techniques to selected topics. Uses and limitations of various methods of analysis. Orientation and use of computer center is included.

159. Analysis of Marketing Information (3) I, II

Prerequisites: Business Administration 150 and 190.

The analysis and interpretation of marketing and business information. Decision-making procedures used in conjunction with marketing information.

161. Traffic Management (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Organization and functions of a traffic department, routing policy on shipments, freight rates and classifications, receiving and shipping, loss and damage claims, warehousing, packing and loading, documentation, export and import shipments, government regulations.

162. Industrial Marketing (3) I, II

Prerequisites: Business Administration 132 and 150.

Study of industrial products and services and how they are marketed; classifications of industrial products and customers; buying procedures; applications of marketing research; analysis of industrial product planning; industrial channels of distribution; industrial promotion applications and pricing practices.

163. Sales Management (3) I, II

Prerequisites: Business Administration 150.

Consideration of the structure of sales organizations; sales policies; selection, training, compensation, evaluation and control of the sales force; sales analysis; sales quotas; sales costs and budgets; markets and product research and analysis; co-ordination of personal selling with other forms of sales effort.

164. Purchasing and Buying (3) I, II

Prerequisites: Business Administration 132 and 150.

Policies for purchasing raw materials, parts, supplies and finished goods for manufacturing operations, for commercial uses, and for wholesale and retail resale. Buying procedures, inventory control, vendor relations, legal problems, quality control, financing.

165. International Marketing (3) II

Prerequisite: Business Administration 150.

Bases and promotion of foreign marketing; foreign marketing organizations and methods; technical and financial features of international markets; selection of organization and trade channels. Determinants and principles of foreign marketing policies.

170. Real Estate Principles and Practices (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Functions and regulation of the real estate market; transfers of property; including escrows, mortgages, deeds, title insurance; appraisal techniques; financing methods; leases; subdivision development; property management.

171. Law of Real Property (3) I, II

Prerequisites: Business Administration 30A, 30B, and 170.

Legal theory and practice of estates in land; landlord and tenant relationships; land transactions; mortgages and trust deeds; easements; land use; ownership rights in land; public land law.

172. Property Investment and Management (3) I, II

Prerequisite: Business Administration 170.

The rental markets, property management programs, collection procedures, lease forms, tenant and owner relations, rental techniques, maintenance and rehabilitation procedures, and investment property analysis.

173. Real Estate Finance (3) I, II

Prerequisites: Economics 1A, 1B, (or 103A, 103B), Business Administration 30A, 30B, and 170.

Methods of financing real estate; sources of real estate credit; loan servicing; governmental financial agencies; acquisition and sale of mortgages and trust deeds.

174. Real Estate Appraisal Theory (3) I, II

Prerequisites: Business Administration 170.

Introduction to theories, functions, and purposes of appraisals of residential and income properties: Methods of valuation, techniques of market data analysis, rehabilitation estimates.

175. Real Estate Appraisal Problems (3) II

Prerequisite: Business Administration 174.

Implementation of advanced value theory and appraisal technique in the solution of valuation problems involving condemnation, and industrial, commercial, land, and special purpose properties.

180. Workshop in Business Education (2) S

Developments in business education areas such as (A) bookkeeping, (B) distributive and basic business education, (C) secretarial, and (D) typewriting. Opportunity provided for work on individual problems. May be repeated with new subject matter to a total of eight units.

182. Consumer Income Management (3) I, II

Functions and responsibilities of consumers; problems of choice-making; planning expenditures for housing, household operation, insurance and investments. Economics of installment buying, borrowing procedures, control of frauds, legislation affecting consumers.

183. Executive Secretarial Management (3) II

Prerequisites: Business Administration 72, 74, and 75B.

Executive secretarial responsibilities and functions, including a review for the Certified Professional Secretary Examination.

184. Information Systems Management (3) I, II

Prerequisite: Business Administration 83; Economics 2 or Mathematics 12.

Administrative theories as they apply to typical information systems; interrelationship of personnel, equipment, and services; emphasis on quantitative and qualitative aspects of information systems.

185. Automated Management Information Systems (3) I, II

Prerequisites: Required lower division courses of any business administration major or minor.

Concepts and techniques for the design, development, and implementation of EDP-based management information systems to improve decision making.

186. Information Storage and Retrieval Systems (3) I, II

Prerequisites: Business Administration 185, Mathematics 21.

Systems for abstracting, storing, and retrieving information with automated equipment. (Formerly numbered Business Administration 187.)

187. Advanced Programming Techniques (3) I, II

Prerequisites: Business Administration 84 and 185.

Software packages utilized in EDP systems in business. (Formerly numbered Business Administration 188.)

188. Data Processing Practicum (3) I, II

Prerequisites: Business Administration 186, 187, 190.

Fundamentals of systems flow charting and computer programming; computer applications to typical automated data processing problems. (Formerly numbered Business Administration 186.)

189. Scope and Function of Business Education (3) I

Philosophy, scope, and functions of business education; analysis and development of curricula; instructional foundations of basic business subjects.

190. Quantitative Analysis for Business (3) I, II

Prerequisites: Mathematics 20; Mathematics 12 or Economics 2.

Quantitative methods applied to business decision making.

191. Quantitative Methods (3)

Prerequisite: Business Administration 190.

A study of various management science techniques such as simulation, transportation and simpler linear programming and queuing theory.

192. Advanced Quantitative Methods (3)

Prerequisite: Business Administration 191.

The derivation and application of management science techniques to management decision making. Simulation of static and dynamic models. Development of advanced linear and nonlinear programs.

197. Business Forecasting (3) I, II

Prerequisite: Business Administration 126.

Business fluctuations; forecasting, and related problems confronting the business firm; forecasting techniques; specific forecasts. The use of forecasts in the firm.

198. Investigation and Report (1-3) I, II

Prerequisites: Senior standing and consent of instructor.

May be repeated to a maximum of six units.

A comprehensive and an original study of a problem connected with business under the direction of one or more members of the business administration staff.

- 200. Financial Accounting (3)
- 201A. Organization Theory (3)
- 201B. Behavior in Organizations (3)
- 202A-202B. Quantitative Methods (3-3)
- 203. Marketing (3)
- 204. Law for Business Executives (3)
- 205. Financial Principles and Policies (3)
- 206. Managerial Economics (3)
- 207. Research and Reporting (3)
- 208. Managerial Accounting (3)
- 209. Computer Programming and Systems Analysis (3)
- 210. Theory and Analysis of Financial Statements (3)
- 211. Advanced Accounting (3)
- 212. Income Tax Accounting (3)
- 213. Auditing (3)
- 214. Seminar in Accounting Information Systems (3)
- 219. Seminar in Accounting Theory (3)
- 220. Legal Aspects of Labor-Management Relations (3)
- 221. Insurance Principles and Practices (3)
- 223. Seminar in Business Finance (3)
- 224. Seminar in Investments (3)
- 225. Seminar in Insurance (3)
- 228. Seminar in International Business Finance (3)
- 229. Seminar in Financial Markets (3)
- 230. Production and Operations Management (3)
- 231. Advanced Methods Engineering and Work Measurement (3)
- 232. Quality Control (3)
- 233. Inventory and Production Control (3)
- 234. Seminar in Production and Operations Management (3)
- 236. Operations Research (3)
- 237. Computer Implemented Optimum Seeking Methods (3)
- 238. Management Systems and Simulation (3)
- 239. Seminar in Management Science (3)
- 240. Seminar in Manpower Planning and Staffing (3)
- 241. Seminar in Union-Management Relations (3)
- 242. Seminar in Compensation (3)
- 243. Seminar in Organizational Development (3)
- 249. Seminar in Human Resources Administration (3)

- 250. Seminar in Marketing and the Economy (3)**
- 251. Seminar in Marketing Theory (3)**
- 252. Marketing Institutions (3)**
- 253. Seminar in Marketing Price Policy (3)**
- 254. Seminar in Sales Management (3)**
- 255. Seminar in International Marketing (3)**
- 256. Seminar in Consumer Behavior (3)**
- 257. Seminar in Industrial Marketing Management (3)**
- 259. Market Analysis and Research (3)**
- 260. Principles of Real Estate (3)**
- 261. Seminar in Real Estate (3)**
- 262. Seminar in Real Estate Investment (3)**
- 263. Seminar in Real Estate Finance (3)**
- 264. Seminar in Valuation of Real Property (3)**
- 270. Seminar in Business Education (3)**
- 273. Seminar in Information Storage and Retrieval (3)**
- 274. Seminar in Advanced Computer Applications (3)**
- 278. Seminar in Management of Information Systems (3)**
- 279. Seminar in Data Systems Design (3)**
- 281. Behavioral Sciences for Management (3)**
- 282. Group Processes and Leadership (3)**
- 283. Origins and Nature of American Business Enterprise (3)**
- 284. Policy Formulation (3)**
- 285. Seminar in Business Planning (3)**
- 289. Seminar in Organization and Management (3)**
- 290. Directed Readings in Business Administration (3)**
- 297. Research (3)**
- 298. Special Study (1–3)**
- 299. Thesis (3)**

School of Education

Manfred H. Schrupp, *Dean*; Francis A. Ballantine, *Associate Dean*

Accreditation

The School is a member of the American Association of Colleges for Teacher Education. It is fully accredited by the California State Board of Education and the National Council for the Accreditation of Teacher Education.

Bureau of Educational Services and Research

The Bureau of Educational Services and Research is an organized service and research activity of the School of Education. Its chief purposes are to facilitate research by faculty and students in the area of education and to provide services to schools and colleges in the field of education. For further information, see "Research Bureaus" in the catalog section, *Introducing San Diego State*.

Faculty

Emeritus: Alcorn, Bacon, Corbett, Falk, Hammack, E., Hammack, I., Kinder, Linley, Madden, White

Professors: Anderson, E., Anderson, P. S., Apple, Baker, D., Ballantine, Briggs, Bruce, Brydegaard, Charles, Crum, Erickson, Fishburn, Fisher, J., Friedrich, Fulkerson, Gates, Gega, Gjerde, Gray, Groff, Halfaker, Hill, W., Holt, Huls, Hunter, Inskip, Kendall, Koester, LaPray, Lienert, Malcolm, Miller, R., Nardelli, Person, Petteys, Platz, Prouty, Ross, R., Rowland, Schmidt, J., Schrupp, Schunert, Servey, Singer, Smith, H., Smith, R. D., Strand, Tossas, Trimmer, Wetherill, Wilding

Associate Professors: Anthony, Becklund, Blanc, Burian, Clark, M. A., Cummins, Elliott, R., Fearn, Ford, D., Gast, Goodson, Hawley, Heusser, LuPone, McClard, McCoy, L., Meek, Melton, Mitchell, A., Retson, Rixman, Stautland, Steckbauer, Strom, Walsh, M., Warburton

Assistant Professors: Becker, Bee, Berg, M., Birch, Botkin, Bradley, Burnside, Carnevale, Chamley, Cochran, Collica, Doorlag, Duckworth, Edgemon, Forbing, Harrison, P., Hill, P., Holman, Kaatz, Klann, Klemer, Manjos, McAllister, McCabe, McLevie, Mooers, Moreno, Morris, J., Morris, W., Murphy, M.A., Nagel, Pehrson, Richman, Sanner, Shaw, L., Thompson, G., Treadway, Vasquez, L., Weir, Yesselman

Lecturer: Payne, W.

Offered by the School

Master of Arts in education.

Master of Science in counseling.

Bachelor of Education degree.

Bachelor of Vocational Education degree.

Teaching credentials in all areas.

Minor in library science.

Admission to Teacher Education

A student who plans to work for a credential at San Diego State must first be admitted to teacher education. These requirements are in addition to those required for admission to the university. Normally the student should apply early in his junior year. If, however, he has completed his freshman year elsewhere, he should apply early in his sophomore year. Except under unusual circumstances no student may take an education course who has not been admitted to teacher education.

Some of the qualities sought for in candidates by the Admissions Committee of the school are above average intelligence, superior scholarship, professional aptitude, wholesome personality and good character, sound speech and language habits, diversified interests, and competence in arithmetic, penmanship, spelling, and reading.

Specifically, the following are the factors the Admissions Committee considers in deciding whom to admit:

1. A satisfactory score on the college aptitude test taken at the university.
2. Competence in the use of English and satisfactory ability in arithmetic, hand-writing, reading and spelling as indicated by scores on fundamentals tests for those applying for elementary education. (See the academic calendar for dates of these tests which should be taken in the second semester of the freshman year.)
3. Satisfactory scores on The Comprehensive College test for secondary and community college teaching. (See the academic calendar for dates of these tests, which should not be taken prior to the junior year.)
4. Satisfactory quality of speech and voice control.
5. Results of the college health examination given for teaching credential candidates.
6. Interviews with representatives of the Admissions Committee and, for secondary education only, with a representative of the department in which the student is a major.
7. Satisfactory grade point averages on the first two years or more of a given curriculum and on all subsequent work taken for the credential. Minimum grade point averages are indicated below:
 - a. Elementary teaching, 2.20.
 - b. Health and development credential, 2.20.
 - c. Secondary teaching, all subjects, 2.50, and major field, 2.75.
 - d. Junior college teaching, 2.50.
8. For administration, supervision, and pupil personnel services credential candidates, a satisfactory grade point average (minimum 2.75) on all work applicable to that credential, exclusive of the work applied to the basic credential.
9. For secondary teaching candidates, an official evaluation and program approved by the authorized departmental representative in the student's major field and by a representative in secondary education.
10. A transcript of all work completed at other institutions must be filed with the secondary education department.

Requirements for Degrees

Requirements and descriptions of the Master of Arts in education, with concentrations in ten areas, and of the Master of Science in counseling are to be found in the Graduate Bulletin.

The Bachelor of Education degree is intended for teachers holding provisional kindergarten-primary or elementary credentials.

In addition to the requirements listed in "Graduation Requirements" in the catalog section Degrees and Programs, the candidate must complete at least two units in each of four of the following fields: art, English and speech, health science and physical education, mathematics, music, natural science, and social science (including geography). He must complete a major of 24 units in elementary education, including courses from each of the following areas: methods of teaching in the elementary school, principles of elementary education, child psychology, and instructional media. He may receive four units for each year of verified successful teaching to a maximum of eight units applicable on the degree. Up to 30 units may be earned by examination in lieu of the courses in the areas listed.

Bachelor of Vocational Education. This degree is available only to vocational teachers recommended by the Board of Examiners for Vocational Education. The requirements are the same as those for the A.B. in applied arts and sciences. The specific program to be followed is to be selected with the approval of the Dean of the School of Education.

Requirements for Credentials

Any one wishing to teach or provide other types of professional service in the public schools of California must hold a credential issued by the State Department of Education. San Diego State has authority to recommend applicants for various credentials. They are as follows:

Credential	School Service Authorized
(1) A standard teaching credential with specialization in:	
(a) Elementary teaching	Teach kindergarten and grades one through nine
(b) Secondary teaching	Teach major and minor in grades seven through twelve
(c) Community college teaching	Teach major in community college
(2) A standard designated services credential	Perform pupil personnel services or health services as specified on the credential
(3) A standard supervision credential	Serve as supervisor, consultant, or other intermediate administrative position including school principal
(4) A standard administration credential	Serve as a district superintendent or in intermediate level administrative positions, including those services authorized by the standard supervision credential
(5) A restricted credential	Serve as a speech and hearing specialist at all grade levels

By completing specialized preparation, additional authorization may be earned to qualify one as (1) Teacher of Exceptional Children: Deaf or Severely Hard of Hearing, (2) Teacher of Exceptional Children: Handicapped in Speech or Hearing, (3) Teacher of Exceptional Children: Mentally Retarded—for all grade levels, kindergarten through grade fourteen, or (4) School Librarian, for service as librarian and teacher of librarianship in kindergarten and grades one through fourteen.

Recent legislation will change many of the current requirements for credentials as described here. Any person who, on November 1, 1971, has completed two years of college and on that date is enrolled in a teacher education program, will have until September 15, 1974, to complete the current requirements.

After an interval of five years, courses in education are reevaluated and subject to reduction in credit, in light of such new requirements as may have been put into effect and changes in educational procedures.

Standard Teaching Credential

To be recommended for this credential, an applicant must have a bachelor's degree with 40 units in general education plus a fifth postgraduate year. It provides for specialization either in elementary or in secondary teaching.

For specialization in *elementary teaching*, the student must include in his course work Art 2A; Education 111, 112, 131, 132, and 101 or 202; Geography 1 and 2; Health Science and Safety 150; Mathematics 10; Music 2; and Physical Education 53; and have a major in one of the following:

Art	Fine Arts and	Physical Science
Biology	Social Sciences	Physics
Botany	French	Political Science
Chemistry	Geography	Social Sciences
Economics	Geology	Sociology
English	German	Spanish
Fine Arts	History	Speech Communication
Fine Arts and	Mathematics	Zoology
Humanities	Music	

To be recommended for the *secondary specialization*, the student must have Education 100, 110, 121, 180A-B-C-D and 252, and Health Science and Safety 151; and a major in one of the following:

Art	German	Physical Sciences
Biological Sciences	Health Sciences	Physics
Business	History	Psychology
Chemistry	Home Economics	Russian
Drama	Industrial Arts	Social Sciences
English	Mathematics	Spanish
French	Music	Speech
Geography	Physical Education	

Interdepartmental Majors

The requirements for the departmental majors are described with each department in the catalog section *Courses and Curricula*. The requirements for interdepartmental majors are as follows:

Fine Arts, for Elementary Teaching

Preparation for the major. Art 1A and 2A; Music 2, 10A, 10B, 10C; and Speech Communication 3. (14 units)

Teaching Major. A minimum of 26 upper division units to include six units selected from Art 110, 117A or 119A, 118, and 108 or 156A; Music 144, 145, 146; either one course selected from Art 106A, 111A, 117A, 120A or two units from Music 170 through 188; nine units selected from Drama 110, 120, 122, 132, 140A, 142 (maximum 3 units), 152A, 160A, Telecommunications and Film 180.

Fine Arts and Humanities, for Elementary Teaching

Preparation for the major. Courses must be selected from the same two areas as those to be used for the upper division concentrations: Art 1A, 2A; Drama 8, Speech Communication 3; or Music 2, 10A, 10B, 10C; plus six units in either English or philosophy.

Teaching Major. A minimum of 24 upper division units to include nine units selected from Art 110, 118, 117A or 119A, 108 or 156A; Music 144, either 143 or 145, 146A, and two units selected from courses numbered 170 through 188; Drama 110, 120, 122, 127A, 132, 140A, 142 (maximum 3 units), 152A, 160A. At least 15 additional units as specified in one of the following areas: Philosophy 101, 103, 123, 127, either 128 or 135; English 175 or 180, six units selected from 103, 121A, 121B, or from courses numbered 111 through 118, six units selected from courses numbered 122A through 149 (except 103, 121A, 121B).

Fine Arts and Social Sciences, for Elementary Teaching

Preparation for the major. Courses must be selected from the same two areas as those to be used for the upper division concentrations: Art 1A, 2A; Drama 8, Speech Communication 3; or Music 2, 10A, 10B, 10C; plus six units in one of the following: anthropology, economics, geography, history, political science, psychology, or sociology.

Teaching Major. A minimum of 24 upper division units to include nine units selected from Art 110, 118, 117A or 119A, 108 or 156A; Music 144, either 143 or 145, 146A, and two units selected from courses numbered 170 through 188; or nine units selected from Drama 110, 120, 122, 127A, 132, 140A, 142 (maximum 3 units), 152A, 160A. At least fifteen additional units as specified in one of the following areas:

Anthropology 100A, 100B, 102, 103, 120, 151, 152, 156, 163, and 165.

Economics 100A, 100B, 102, 103A, 103B, 110, 111, 131, 135, 150, 170, 195, and 196.

Geography. Six to nine units selected from Geography 120, 121, 122, 123, 124, 125, 126, 127, 129, 130, 131, 133, 134; six to nine units selected from Geography 100, 101, 105, 110, 150, 151, 152, 153, 155, 180, 181A, 181B, and 182.

History. Prerequisites: History 4A and 4B. History 131A, 131B, 143A, 143B, 144A, 144B, 171A, 171B, 189A, 189B, 191A, and 191B.

Political Science. Twelve units from Political Science 105, 111A, 111B, 112, 116, 117, 120, 125, 130, 138, 170A, 170B; and three units from Political Science 180, 181, 183, 184, 185, 186, 187, 188, 189, 190, and 194.

Psychology 105, 109, 131, 145, 150.

Sociology 102, 110, 114, 122, 125, 136, 140.

Physical Sciences, for Elementary Teaching

Preparation for the major. A minimum of 18 units to include: three units of astronomy; three units of geology; six units of chemistry; six units of physics; and must include prerequisites for the upper division courses selected for the major. Adequate preparation in mathematics is essential.

Teaching Major. A minimum of 24 upper division units in any two or more of the academic subject areas of the physical sciences and mathematics, selected with approval of the adviser in the physical sciences for teaching programs.

Social Sciences

For Elementary Teaching

Preparation for the major. A six-unit sequence in one of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, (6) sociology; and six additional units in one or two of the remaining fields.

Teaching major. Twenty-four upper division units, to include 12 units from any field named above and six units from each of two additional fields named. It would be well for the candidate to take the 12 units required in one field in his postgraduate year.

For Secondary Teaching

Preparation for the major. A six-unit sequence is required in three of the following fields: anthropology, economics, geography, history, political science, and sociology. The following are especially recommended: Anthropology 1A-1B or 1A-1C or 1B-1C, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1 and 2, Sociology 1 and 10.

Teaching major. Thirty upper division units to include 15 units from any field named above, six units from each of two additional fields named, and three units of electives from any of the fields named. The student should include six units in U.S. history and three units in a fourth field of those named. In a postgraduate year, he must earn an additional six upper division or graduate units in courses selected with approval of the social sciences adviser.

Elementary credential candidates who are not completing a major in an academic subject must have a *minor* chosen from the following list.

Biology	German	Physical Education
Chemistry	Health Science	Physics
Drama	Industrial Arts	Psychology
English	Italian	Russian
Exceptional Children	Library Science	Spanish
French	Mathematics	Speech Communication
Geography	Music	

Candidates for the *secondary credential* must have a *minor* chosen from the following list.

Art	German	Mathematics
Biology	Health Science	Music
Business	History	Physical Education
Chemistry	Home Economics	Physics
Drama	Humanities: Latin	Political Science
Economics	Industrial Arts	Psychology
English	Italian	Russian
Exceptional Children	Journalism	Spanish
French	Latin	Speech
Geography	Librarianship	

Interdepartmental Minor: Humanities

The requirements for the departmental minors are described with each department in the catalog section *Courses and Curricula*. The requirements for the interdepartmental minor in humanities, with a concentration in Latin, for secondary teaching are as follows: 15 units in Latin, six of which must be upper division. Another eight units must be taken in these courses: Comparative Literature 102A-102B, General Language 20, Humanities 40, Philosophy 101, or upper division Latin courses, or any combination of these.

Specialized Preparation Applicable to the Standard Teaching Credential

Those who plan to teach in the secondary schools may use the following specializations in place of a minor:

Exceptional Children: Deaf or Severely Hard of Hearing

Required: Education 167, 179, and 185; Education 172 or Speech Pathology and Audiology 127; Speech Pathology and Audiology 120, 121, 140, 146, 150, 151, 152, 153, 156, 255, and 257.

Exceptional Children: Handicapped in Speech or Hearing (Plan I)

Required: Education 167 and 184; Speech Pathology and Audiology 120, 121, 122, 123, 124, 126, 127, 128, 140, 141, 145, 151, and 244.

Exceptional Children: Mentally Retarded

Required: Education 167, 168 or 169, 171, 172, 173, 182, Psychology 109, and five units chosen with approval of the adviser (26 units).

School Librarian

Required: Education 183, Library Science 110, 118, 119, 136, 138, 184, 231, 232; and two courses selected from Library Science 225, 226, 227.

Persons wishing to teach or serve in these specialized areas at the elementary level must also take the indicated courses.

Other Credentials

San Diego State also accepts candidates for the standard teaching credential with specialization in *community college* teaching. Such a candidate must have a master's or doctor's degree. For details, consult the Coordinator of Community College Programs.

The university also accepts candidates for the Standard Designated Services Credential with specialization in *health* or in *pupil personnel* service. The former requires registration as an R.N. in California and a valid certificate of public health nursing issued by the California State Board of Public Health. The latter requires a master's degree. For details, see the Coordinator of Secondary Education or the Coordinator of Counselor Education, respectively.

Similarly, applicants for the Standard Supervision Credential must have a master's degree. For details, see the Coordinator of Educational Administration.

A restricted credential as a *speech and hearing specialist* is available for service at all grade levels. For details, see Speech Pathology and Audiology.

Minor in Library Science

The minor consists of 15 units in library science.

A. Review of Arithmetic (0) I, II

H. Review of Handwriting (0) I, II

R. Review of Reading (0) I, II

S. Review of Spelling (0) I, II

Noncredit courses designed to increase competence in the skill subjects. For students who do not qualify on the respective sections of the Fundamentals Test required of all applicants to elementary teacher education.

*Social Foundation***100. The Secondary School (4) I, II**

Prerequisite: To be taken concurrently with Education 180B.

American Education in its social and historical setting. The secondary school curriculum, the philosophies, issues, and social forces that influence the school. Not open to students with credit in Education 101 or 102.

101. History and Philosophy of Education (2) I, II, S

Prerequisites: Senior standing and a minimum of 12 units in education.

Historical backgrounds and underlying philosophies upon which the public school system has been established. Meaning of education, educational aims and values, and democracy and education. Not open to students with credit in Education 100.

102. Secondary Education (3) Irregular

An introduction to understanding the development of secondary education and its present status as a social institution. Not open to students with credit in Education 100.

104. European Education and Cultural Change (3) II

Tradition and change in contemporary European education with special reference to England, France, Germany, and the U.S.S.R.

*Psychological Foundations***110. Psychological Foundations of Education for Secondary Teachers (5) I, II**

Five lectures and instructional media laboratory.

Prerequisites: Admission to Teacher Education and education program approved by the Coordinator of Secondary Education. To be taken concurrently with Education 180A and instructional media demonstration and practice.

The nature of growth and development, principles and theories of learning, guidance practices, test and measurements. Not open to students with credit in Education 112 or 113.

111. The Learner in the Elementary School (3) I, II, Summer

Prerequisites: Psychology 1 and admission to Elementary Education.

Intellectual, emotional, social, and physical development during childhood and early adolescence, including basic principles of child guidance and counseling. Directed observation required.

112. The Learning Process in the Elementary School (3) I, II, Summer

Prerequisite: Education 111.

Psychological principles for effective classroom teaching; techniques of measurement and evaluation for the diagnosis and improvement of learning.

113. Growth and Development of the Adolescent (3) Irregular

Adolescent physiological, psychological, social, and emotional development, including principles of mental hygiene and guidance. Field work with adolescent groups in the community is required. Not open to students with credit in Education 110.

114. Interpretation of Early Childhood Behavior (3) Irregular in Summer

For kindergarten-primary teachers treating the analysis and interpretation of early childhood behavior. Emphasis on understanding and interpreting the causative factors in typical behavior of children to parents, social workers, teachers, and others concerned with the guidance of kindergarten-primary children.

115. Guidance in Elementary Education (3) I, II, Irregular

A study of the basic principles of guidance and their function in the educational process as applied in the elementary school.

116A-116B-116C. Child Study Laboratory I, II

Prerequisite: 116A is prerequisite to 116B, and 116B to 116C.

Development of background and procedures for child study and their application to field situations. Field work required. For teachers in service. Offered only in Extension.

118. Supervision of Child Welfare and Attendance (3) Irregular

Content includes laws relating to children, guidance principles, social casework, agency relationships, conference techniques, home visitation methods, employment supervision, attendance work, child accounting, familiarity with testing techniques.

*Methods—Secondary***120. The Teaching Process (3) I, II**

To develop teacher competency at the secondary level in professional and community relationships; in general methods and materials; in planning for teaching; and in evaluating learning activities.

121. Methods and Materials of Instruction: Major (2) Minor (2) except Education 121E (3) and Education 121Q (3)

Lecture courses, except that Education 121K and 121N meet for one lecture and three hours of laboratory.

Professional courses in specific teaching fields taken concurrently with directed teaching. Each course emphasizes the application of best practices with reference to each subject area named.

Subject fields for section 121 are as follows:

Offered in the Fall Semester

- A. Methods in Art
- B. Methods in English
- C. Methods in Home Economics
- D. Methods in Industrial Arts
- E. Methods in Foreign Languages
- F. Methods in Mathematics
- K. Methods in Physical Science
- L. Methods in Speech Communication
- M. Methods in Social Science
- N. Methods in Life Science
- O. Methods in Drama
- Q. Methods in Business Skills
- V. Methods in General Science

Offered in the Spring Semester

- C. Methods in Home Economics
- D. Methods in Industrial Arts
- F. Methods in Mathematics
- K. Methods in Physical Science
- M. Methods in Social Science
- N. Methods in Life Science
- V. Methods in General Science

Offered Irregularly

- P. Methods in Health Education
- H. Methods in Phys. Ed. (Men)
- J. Methods in Phys. Ed. (Women)
- R. Methods in Choral Music
- S. Methods in Instrumental Music

122. Reading in Secondary Education (3) Irregular

The nature of the reading program, development of techniques and skills, vocabulary development, reading in the content fields, the differentiated attack, measurement, diagnosis, and remediation.

123. Organization and Operation of the Reading Laboratory (3) I, II

Lectures and laboratory to eight hours per week.

Prerequisite: Education 122.

Problems and techniques in organizing and operating the reading laboratory in secondary schools and colleges; current research and laboratory experiences.

126. Workshop in Secondary Education (3 or 6) Irregular

Designed to meet the needs of individuals or groups of teachers who wish to develop or continue the study of some problem with the consultation of the college staff and the San Diego County Curriculum Staff.

*Methods—Elementary***130. First Elementary Education Practicum (2) I II, (3) S**

Four hours of activity for 130A; four hours of activity for 130B; six or more hours of activity and instructional media laboratory for 130C.

Prerequisite: Concurrent registration in Education 111, or consent of Coordinator of Elementary Education.

Curriculum, principles, methods, and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed A through C below.

- A. Arithmetic
- B. Language Arts
- C. Student Teaching (Not offered in the summer)

131. Second Elementary Education Practicum (2) I, II, S, except 131D (3) or 131E (4)

Four hours of activity for 131A; four hours of activity for 131B; six or more hours of activity for 131C or 131D or 131E; and instructional media laboratory.

Prerequisite: Education 111 and 130; concurrent registration in Education 112 or consent of Coordinator of Elementary Education.

Curriculum, principles, methods, and materials of instruction, including instructional media, and participation in elementary education, in the areas listed in A through E below.

- A. Reading
- B. Social Studies
- C, D, or E. Student Teaching (not offered in the summer)

132. Third Elementary Education Practicum (2) I, II, S, except 132D (4) or 132E (5)

Four hours of activity for 132A, for 132B, and for 132C; ten or more hours of activity for 132D or 132E.

Prerequisites: Education 112 and 131.

Curriculum, principles, methods, and materials of instruction, including instructional media, and participation in elementary education, in the areas listed in A through E below.

- A. Science
- B. Art
- C. Music
- D or E. Student Teaching (not offered in the summer)

133. Children's Literature in Elementary Education (3) Irregular

A survey of children's literature; the selection and use of material in the elementary classroom.

134. Laboratory in Elementary Education (3) S

A general course in observation and theory, including a study of arithmetic, reading, language, music, science, social studies, art, spelling. Students in this course will observe in the summer demonstration school and discuss with the staff the teaching procedures.

135. Workshop in Elementary Education (3 or 6) Irregular

To meet the needs of individual or groups of teachers who desire to study selected problems in elementary education. The observation of classroom teaching will be provided for members in attendance. Interested persons should correspond with the Coordinator of Elementary Education, San Diego State College.

136. Modern Foreign Languages in Elementary Education (3) Irregular

Prerequisites: French or German or Spanish: (1964-65) courses 1, 2, 10, 11, or equivalents; (1965-1966) courses 1, 2, 3, 10, 11, or equivalents; (1966-1967) courses 1, 2, 3, 4, 10, 11, or equivalents.

Methods of teaching modern foreign languages in the elementary school, emphasizing the audio lingual approach. Students will produce materials and learn to use tapes, film strips, records, films, language laboratories, and written materials.

137. Reading Difficulties (3) I, S

Two lectures and two hours of laboratory.

Prerequisites: Education 112 and 131A or 122.

Reading difficulties, their causes, prevention, and correction. Remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist.

138A. Curriculum in Elementary Education (3) Irregular

Formerly Education 138.

Emphasis upon the selection and development of content, teaching methods, and materials as they relate to social needs; evaluation procedures; psychological principles, and the nature of the learner.

138B. Social Studies Unit Construction in Elementary Education (3) Irregular

Prerequisite: Education 131B.

Selecting and organizing content, analyzing materials, and developing instructional units in elementary social studies for classroom use.

139. Kindergarten-Primary Practicum (3) I, II, S

The theory of early childhood education and the materials and teaching techniques used in the kindergarten. This course must be taken concurrently with Education 132C when the student teaching assignment is in the kindergarten.

*Audiovisual***140. Techniques of Media Utilization (3) I, II, S**

Three lectures and two hours of laboratory.

Use in the teaching-learning process, including laboratory.

141. Producing Instructional Materials (3) Irregular

Prerequisite: Education 140.

Production and evaluation of instructional materials.

143-S. Workshop in Educational Television (6) S

(Same course as Telecommunications and Film 172)

Open to teachers and students interested in instruction by television.

The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

144. Application of Programed Instruction (3) Irregular

Prerequisite: Education 112 or 110, or Psychology 175.

Application of programed instructional materials to the teaching process, i.e., punch and strip devices, programed texts, teaching machines. Selection, evaluation, and utilization of programed materials in team-teaching and other new instructional systems. Individual preparation of instructional programs; laboratory practice.

151. Measurement and Evaluation in Elementary Education (3) I, II, S

Should follow Education 112 for elementary credential candidates.

The use of intelligence and achievement tests in the diagnosis and improvement of learning; construction of objective examinations; problems of evaluation in education; the elements of statistical techniques.

152. Measurement and Evaluation in Secondary Education (3) Irregular

Problems of evaluation in secondary education, construction of examinations, elements of statistics, selection and interpretation of standardized measures. Not open to students with credit in Education 120.

153. Quantitative Methods in Educational Research (3) I, II

Basic tests of statistical significance with special reference to the interpretation of educational data.

*Exceptional Children***161. Measurement and Evaluation in Special Education (4) II**

Three lectures and 3 hours of laboratory.

Prerequisites: Education 120; 151 or 152; and Psychology 105.

Consideration of representative tests and evaluation procedures appropriate to the several areas of exceptionality; problems in psycho-educational diagnosis and appraisal; assembling and utilizing test results for the educational and/or rehabilitation program.

162. Emotionally Disturbed Children and Youth (3) I, S

Prerequisite: Education 167.

Nature, needs and problems of emotional deviates; survey of settings and roles of those who help, and ways they help.

163. Curriculum and Methods for Teaching Emotionally Disturbed Children and Youth (3) II or Irregular

Prerequisites: Education 162 or 167.

Selection, organization and presentation of curricular materials for emotionally disturbed children and youth.

164. Education of the Neurologically Handicapped (3) I

Prerequisites: Education 167 and Psychology 109.

Educational and psychological problems of brain-injured children and youth; identification procedures; educational programs, instructional methods, preparation of materials.

167. Exceptional Children (3) I, II, S

Characteristics and adjustment problems of mental, physical, and emotional deviates.

168. Curriculum and Methods for Teaching Mentally Retarded Children in the Elementary School (3) II, S

Prerequisite: Psychology 109 or Education 167.

Selection, organization, and presentation of curricular materials for mentally retarded children at all levels of the public schools. Concentration will be on the elementary level. (Recommended for students with specialization in Elementary Teaching.)

169. Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) I, S

Prerequisite: Psychology 109 or Education 167.

Selection, organization, and presentation of curricular materials for mentally retarded children at all levels of the public schools. Concentration will be on the secondary level. (Recommended for students with specialization in Secondary Teaching.)

170. Workshop in Special Education (2-4) I, II, S

Curriculum and methods of teaching in an area of exceptionality; observation of demonstration class; development of materials of instruction. May be repeated once in a second area of exceptionality. Not more than six units may be used for any degree.

171. Practicum in Mental Retardation (2) II

One lecture and two hours of laboratory.

Prerequisites: Admission to Special Education, and Psychology 109 or concurrent registration.

Supervised observation and participation in classroom and related school activities for mentally retarded. Course work includes discussion, analysis, and reports of observations.

172. Counseling Exceptional Children (3) I, S

Prerequisites: Education 110 or 112, and Education 167 or Psychology 109.

Educational, mental, social, and vocational counseling of exceptional individuals and their parents. Interrelationships of home, school, and community agencies.

173. Education of the Severely Mentally Retarded (3) II, S

Prerequisites: Education 167 and Psychology 109, and admission to Special Education.

Organization and planning of instructional activities; materials and equipment; utilization of resources, records, and reports; and classroom management of those under 50 IQ and those with neurological impairments.

174. Principles and Methods of Speech Correction (3) I

(Same course as Speech Pathology and Audiology 124)

Prerequisites: Speech Pathology and Audiology 120 and 121.

Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

176. Stuttering and Neurological Disorders (3) I

(Same course as Speech Pathology and Audiology 125)

Prerequisites: Speech Pathology and Audiology 120 and 121.

Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children. Study of child or adult who presents multiple problems.

177. Audiometry: Principles (3) I

(Same course as Speech Pathology and Audiology 140)

Prerequisite: Psychology 50.

Anatomy and physiology of the human ear, theories of hearing, physics of sound, medical aspects, pathology and surgery of the ear, survey of current audiometric techniques.

178A. Communication Skills for the Deaf (3)

(Same course as Speech Pathology and Audiology 151)

Prerequisite: Speech Pathology and Audiology 140.

History, theory and methods of lipreading; auditory training.

179. Curriculum and Instruction for Teaching the Deaf (3) II

Prerequisite: concurrent registration in Education 185.

General elementary curriculum principles, methods and materials of instruction in teaching elementary subjects to deaf children including reading. Twenty-six hours observation in programs for the deaf.

*Student Teaching***180A-180B. Directed Participation, Secondary (1-1) I, II**

Prerequisite: To be taken concurrently with Education 100 and Education 110.

A comprehensive orientation to a secondary school with directed observation and participation in the classroom.

180C-180D. Directed Teaching Secondary (3-3) I, II

Prerequisites: Admission to teacher education and concurrent registration in Education 252 is required for Education 180C. Education 180C is prerequisite to 180D.

Systematic observation, participation, and teaching under supervision in a junior or senior high school. A weekly seminar or conference is required. Education 180D is also offered in the summer.

181A. Directed Teaching, Elementary (1) I, II**181B. Directed Teaching, Elementary (2) I, II****181C. Directed Teaching, Elementary (3) I, II**

Prerequisites: Admission to teacher education and education program approved by the Coordinator of Elementary Education. Any grade below C is unacceptable for a credential.

Systematic observation, participation and teaching under supervision in elementary schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

182. Directed Teaching—Mentally Retarded (4) I, II

Application to take the course should be made during the preceding semester.

Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

183. Directed Teaching—Library Practice (2-4) I, II

Prerequisites: Admission to teacher education and concurrent completion of a teaching minor in library science.

Systematic observation and participation in library and audiovisual service under supervision in a school library and/or teaching materials center. During each semester of student library work a weekly conference period is required as indicated in the time schedule.

184. Directed Teaching—Speech Correction (4) I, II

Application to take the course should be made during the preceding semester.

Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

185. Directed Teaching—Hearing Impaired (4)

Application to take the course should be made during the preceding semester.

Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of hearing impaired.

*Conference and Special Courses***190. Conference on the Teaching of Mathematics (1) S**

May be taken three times for credit.

Lectures, discussions, and demonstrations on problems in teaching of mathematics in the elementary and secondary schools. Designed for teachers, supervisors, and administrators interested in current developments in this area.

191. Guidance Conference (1) S

Prerequisite: Consent of director of the conference. Course may be taken three times for credit.

A series of lecture and discussion sessions centering on current problems in counseling and guidance. Designed to serve the needs of any person desiring to keep informed of developments in this area.

192. Audiovisual Conference (1) S

May be taken three times for credit. Course does not fulfill credential requirement.

A series of lectures, discussions and demonstrations, centering on problems in the use of audiovisual instructional materials. Designed for teachers, administrators, audiovisual representatives, and others interested in current developments in this area.

197. Problems in Education (Credit to be arranged) Extension

Prerequisite: Consent of instructor.

Class study of specially selected problems in education. Does not apply to pattern requirements for credentials. Offered only in extension.

Sociological Foundations

- 201. The Community College (2)
- 202. Social Foundation (2 or 3)
- 204. Comparative Education (3)
- 205. History of Education (3)
- 206. Philosophy of Education (3)
- 207. Educational Sociology (3)
- 208. Workshop in Community Influences on Learning and Curriculum Planning (3 or 6)
- 209. Workshop in Community College Education (2-6)

Procedures of Investigation

- 211. Procedures of Investigation and Report (3)
- 212. Educational Research Design (3)
- 213. Advanced Quantitative Methods in Educational Research (3)

Educational Psychology

- 220. Advanced Educational Psychology (3)
- 221. Seminar in Educational Measurement (3) 5
- 222. The Gifted Child (3)
- 223. Educational Psychology: Community College (2)

Guidance

- 224. Administration of Pupil Personnel Services (3)
- 225A–225B. Determinants of Human Behavior (3–3)
- 226. Guidance Services in Public Education (3)
- 229. Workshop in Counseling (3)
- 230. Guidance Problems in Secondary Education (3)
- 231. Theory and Process of Appraisal (4)
- 232. Theory and Process of Vocational Choice (4)
- 233. Theory and Process of Counseling (4)
- 234. Theory and Process of Group Counseling (4)
- 237. Appraisal and Vocational Choice (6)
- 238. Counseling: Individual and Group (6)
- 239A–239B. Professional Seminar in Guidance (3-3)

Elementary Education

- 240. Curriculum Construction and Evaluation in Elementary Education (3)
- 241. Seminar in Arithmetic in Elementary Education (3)
- 242. Seminar in Reading in Elementary Education (3)
- 243A. Seminar in Social Studies in Elementary Education (3)

- 243B. Seminar in Elementary Social Studies Curriculum Development (3)**
- 244. Seminar in Language Arts in Elementary Education (3)**
- 245. Seminar in Elementary Education (3)**
- 246. Advanced Diagnosis in Reading (3)**
- 247. Advanced Diagnosis and Treatment of Learning Difficulties (3)**
- 248. Seminar in Science in Elementary Education (3)**
- 249A. Seminar in Art in Elementary Education (3)**
- 249B. Seminar in Music in Elementary Education (3)**

Secondary Education

- 250. Curricular Problems in Secondary Education (3)**
- 251. Instructional Methods and Materials: Community College (2)**
- 252. Seminar for Student Teachers (3)**
- 253. Supervision of Student Teaching (2)**
- 254. Advanced Problems in Secondary School Instruction (3)**
- 255A. Advanced Curriculum and Instruction in Mathematics (3)**
- 255B. Advanced Curriculum and Instruction in Social Science (3)**
- 255C. Advanced Curriculum and Instruction in English Language and Composition (3)**
- 255D. Advanced Curriculum and Instruction in Literature (3)**
- 256. Recent Trends in Secondary Curriculum (3)**
- 257. Workshop in Intercultural Education (4)**
- 258. Research in Curricular Problems (1-3)**

School Administration and Supervision

- 260. Principles of School Administration (3)**
- 261. Education Leadership (3)**
- 262. Legal and Financial Aspects of School District Policies (3)**
- 263. Curriculum Development and Evaluation (3)**
- 264A-264B-264C. Seminar in Elementary School Administration and Supervision (2-2-2)**
- 265A-265B-265C. Seminar in Secondary School Administration and Supervision (2-2-2)**
- 266A-266B-266C. Field Experience in Elementary School Administration and Supervision (1-1-1)**
- 267A-267B-267C. Field Experience in Secondary School Administration and Supervision (1-1-1)**
- 268. Seminar in School Administration and Supervision (3)**
- 270. Seminar in Education of Exceptional Children (3)**
- 271. Seminar in Emotionally Disturbed Children and Youth (3)**
- 272. Seminar in Education of the Gifted (3)**

- 273. Seminar in Education of the Mentally Retarded (3)**
- 274A. Seminar in Instructional Media Utilization (3)**
- 275. Seminar in the Administration of Instructional Media Centers (3)**
- 276. Seminar in Programed Instruction (3 to 6)**
- 280. Legal and Financial Aspects of School District Management (3)**
- 281. School-Community Relationships (3)**
- 282. School District Personnel Management (3)**
- 283. District Curriculum Development, Evaluation and Improvement (3)**
- 284. Advanced Seminar in School Administration and Supervision (3)**
- 286A-286B. Seminar in School Building Construction and Utilization (3-3)**

Special Study and Research

- 295A-295B. Seminar (3-3)**
- 298. Special Study (1-3)**
- 299. Thesis (3)**

Student Teaching and Internship

- 316. Directed Teaching: Community College (4)**
- 330. Internship (2-6)**
- 331. Field Work in Counseling (2-6)**
- 332. Practicum in Counseling (3)**
- 333. Advanced Seminar and Practicum in Counseling (3-6)**
- 360. Internship in School Administration and Supervision (3 to 6)**
- 371. Directed Internship—Mentally Retarded (4)**
- 374. Directed Internship—Speech Correction (4)**
- 375. Directed Internship for the Instructional Media Specialist (2-6)**

Library Science

1. Use of the Library (1) I, II

Introduction to use of the library. Includes classification, card catalog, periodical indexes, selected reference books, and preparation of bibliographies.

110. Bibliography and Reference Materials (3) I, II

Prerequisite: Library Science 1.

A comprehensive course dealing with reference books, bibliographies, and source materials, with emphasis upon their use in research. A course of general interest and utility.

118. Selection and Acquisition of Library Materials (3) I

Study of all types of book and nonbook materials, including sources of information, selection, and evaluation. Attention is given to book and film reviews, standard lists, trade publications and bibliographies, publishers' and producers' announcements.

119. Technical Processes (3) I

Theory and methods of organizing library materials; a study of classification, cataloging, and choice of subject headings.

136. School Library Administration (3) I

Objectives, standards, and activities involved in operating the school materials program. Planning, organizing, administering, and coordinating the school library with the instructional program of the school.

138. Organizing and Processing of Curriculum and Special Materials (3) II

Prerequisite: Library Science 119.

Methods of purchasing, processing, classifying, cataloging and servicing special curriculum and audio-visual materials.

184. History of Books and Libraries (3) II

The historical development of the book and of the library from the earliest times to the present day; examines their influence upon our schools and culture. Open to all upper division students.

191. Workshop in Library Science (1-3)

Prerequisite: 12 units of library science or employment as a school librarian.

Designed to meet the needs of school librarians and others who wish to develop or continue the study of selected library problems. Maximum credit six units.

225. Bibliography of the Humanities (2)

226. Bibliography of the Social Sciences (2)

227. Bibliography of the Sciences (2)

231. Literature for Children (3)

232. Literature for Adolescents (3)

School of Engineering

Martin P. Capp, *Dean*; Frederick T. Quiett, *Associate Dean*

Accreditation

The undergraduate curriculum in Engineering, with options in aerospace, civil, electrical and electronic, and mechanical engineering, is accredited by the Engineers' Council for Professional Development.

Undergraduate Program

The objective of the engineering program at San Diego State is to provide the intellectual and physical environment best calculated to encourage students to develop their capacities toward a successful career in the profession of engineering. The graduate of this program is able to assume personal responsibility for the development and application of engineering knowledge with wisdom and judgment for the benefit of mankind. He is qualified to take the Engineer-in-Training examination as a first step to professional registration, to enter industry at the junior engineer level, or to continue his formal education at the graduate level. Because the engineer's work is predominantly intellectual and varied, and not of a routine mental or physical character, this program places emphasis upon the mastery of a strong core of subject matter in the physical sciences, mathematics, and the engineering sciences of broad applicability. Woven throughout the pattern is a continuing study of the socio-humanistic facets of our civilization, because the engineering graduate must expect to find his best expression as a leader of men, conscious of the social and economic implications of his decisions.

Although the profession of engineering presents in practice a variety of specialties, the undergraduate student confines his attention during the first two years of the four-year program to a common pattern of course work in fundamentals. During his junior and senior years he may give outlet to his interest in a broad field of engineering by electing a total of 36 units of course work in aerospace, civil electrical and electronic, or mechanical engineering. Even here, during this upper division work, the student is involved with his fellows in the study of a common core of the engineering sciences; these courses, together with those elected in a specialty field, are taught with an emphasis upon universal application and cross-fertilization of thought.

Faculty

Emeritus: Walling

Professors: Bauer, Bedore, Capp, Conly, Dharmarajan, Fitz, Johnson, P., Learned, Lodge, Morgan, C., Noorany, Quiett, Rao, Shutts, Stone, S.

Associate Professors: Chan, Chang, Craig, G., Eggleston, Krishnamoorthy, Leonhardt, Lin, Mann, McGhie, Murphy, R., Ohnysty, Skaar, Stone, H., Stratton

Assistant Professors: Agarwal, Bearnson, Bilterman, Brown, W., Caton, Chou, Crooker, Harris, F., Hussain, Mansfield, McElmury, Narang, Panos, Stuart

Offered by the School

Master of Science in aerospace, civil, electrical, and mechanical engineering.

Bachelor of Science in engineering, with options in aerospace, civil, electrical and electronic, and mechanical engineering.

Minor in engineering.

Major in Engineering

The major consists of 53 upper division units in a prescribed pattern. The program of study for the first two years is the same for all students in the School; thereafter there is differentiation according to the student's selected field of specialization. The requirements are as follows:

Lower Division Requirements

Freshman Year			
Fall semester	Units	Spring semester	Units
Chem. 1A, General.....	5	Chem. 1B, Gen., or 1E, Chem. for Engrs.....	3
Math. 50, Anal. Geom. and Calc.....	5	Math. 51, Diff. and Integ. Calc.....	4
Engr. 20, Engr. Graphics.....	2	Phys. 4A, Principles.....	4
Engr. 5 or Phil. 20.....	3	Engr. 25, Engr. Materials.....	3
P.E. Activity.....	½	Biology 1.....	3
	15½	P.E. Activity.....	½
			17½
Sophomore Year			
Math. 52, Diff. and Integ. Calc.....	4	Phys. 4C, Principles.....	4
Phys. 4B, Principles.....	4	Engr. 40, Engr. Prob. Anal. I.....	2
Engr. 30, Engr. Meas. Anal.....	2	Engr. 50B, Engr. Mech. II.....	3
Engr. 50A, Engr. Mech. I.....	3	Engr. 60, Electr. Circuits.....	3
American Institutions.....	3	American Institutions.....	3
P.E. Activity.....	½	Sp. Communication 3.....	2
	16½	P.E. Activity.....	½
			17½

Upper Division Requirements

The program of study for the last two years embraces the fundamental engineering sciences and their application to specific problems in selected fields of engineering practice, together with an opportunity for the student to approach an intellectual maturity in social, economic, ethic, and aesthetic thought.

The student must complete (1) the upper division requirements for all students; (2) the requirements of the selected field of specialization in accordance with an approved master plan filed during the first semester of the junior year; and (3) the remaining units of general education.

Recommended patterns in the four fields of specialization are shown below.

Aerospace Engineering

All students in the Aerospace Engineering option pursue a common program of aerospace engineering fundamentals; however, some elective opportunity is provided through a choice of upper division courses in engineering, mathematics, or physics, subject to approval of the adviser and the department chairman. The recommended pattern for upper division aerospace engineering courses follows:

Junior Year			
Fall semester	Units	Spring semester	Units
E115, Fluid Mech.....	3	E150B, Aerodynamics.....	3
E115L, Fluid Lab.....	1	E151A, Aero. Struct. Anal. I.....	3
E116, Int. to Solid Mechanics.....	3	E154, Exp. Aerodyn.....	2
E116L, Solid Mechanics Lab.....	1	E187B, Methods of Analysis.....	3
E150A, Aerodynamics.....	3	†Electives within major.....	3
E187A, Methods of Analysis.....	3	**History 172B, 176B, 184B or Political Science 117 or 118.....	3
**History 172A, 176A, 184A or Political Science 115.....	3		17
	17		
Senior Year			
Fall semester	Units	Spring semester	Units
E151B, Aero. Struct. Anal. II.....	3	E190G or E190H, Engr. Appl.....	3
E153, Flight Mech.....	3	E152, Propulsion Systems.....	3
†Electives within major.....	7	†Electives within major.....	6
**Social Sciences or Humanities.....	3	**Social Sciences or Humanities.....	3
	16		15

** Recommended general education course.
† Approved as part of student's master plan by the department chairman.
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Civil Engineering

All students in the Civil Engineering option pursue a common program of civil engineering fundamentals; however, some elective opportunity is provided through a choice of upper division engineering courses, subject to approval of the adviser and the department chairman. The recommended pattern for upper division Civil Engineering courses follows:

Junior Year			
<i>Fall semester</i>	<i>Units</i>	<i>Spring semester</i>	<i>Units</i>
Engr. 116, Introd. to Solid Mechanics	3	Engr. 115, Fluid Mechanics.....	3
Engr. 116L, Solid Mechanics Lab	1	Engr. 115L, Fluid Mech. Lab.....	1
Engr. 187A, Methods of Analysis	3	Engr. 120A, Struc. Anal. I.....	4
Engr. 108, Thermodynamics, or Engr. 118, Rate Processes	3	Engr. 128A, Surveying.....	3
Engr. 108L (needed for 108).....	1	Engr. 100, Elec. Energy Conv., or Engr. 187B, Methods of Analysis	3
General Education	6	Geol. 53, Gen. Geol. for Engrs.	1
	16 or 17		15
Senior Year			
Engr. 122, Soil Mech.....	3	Engr. 121, Reinf. Concrete	3
Engr. 123, Appl. Hydraul.....	3	†Electives within major	10 or 11
Engr. 127, Highway Engr.	3	General Education	3
†Electives within major	5		
General Education	3		
	17		16 or 17

Electrical and Electronic Engineering

All students with the option in Electrical-Electronic Engineering include in their program a sequence of courses designed to develop an understanding of the basic principles, laws, and methodology of Electrical-Electronic Engineering. The student, through the proper selection of electives, has the opportunity to develop proficiency in his area of special interest. Typical areas include communications, control systems, microwave circuits, digital systems and solid state electronics. The recommended pattern of courses for upper division electrical-electronic engineering majors is tabulated below.

Junior Year			
<i>Fall Semester</i>	<i>Units</i>	<i>Spring Semester</i>	<i>Units</i>
Eng. 100, Elect. Ener. Conv.....	3	*Engr. 102, Electr. and Mag. Fields or	
Eng. 100L, Elect. Ener. Conv. Lab.	1	†Elective within major.....	3
Engr. 101, Funds. Electronics.....	3	Engr. 112, Adv. Network Anal.	3
Engr. 101L, Electronics Lab.....	1	Engr. 114, Electronic Circuits.....	3
Engr. 111, Network Analysis.....	3	Engr. 114L, Electronic Circ. Lab	1
Engr. 187A, Methods of Analysis	3	Core Elective	3
General Education	3	General Education	3
	17		16
Senior Year			
<i>Fall Semester</i>	<i>Units</i>	<i>Spring Semester</i>	<i>Units</i>
*Engr. 102 Electr. and Mag. Fields or		†Electives within major.....	10
†Elective within major.....	3	Core Elective	3
†Elective within major.....	6	General Education	3
Core Elective	3		
Core Laboratory	1		
General Education	3		
	16		

* 100c is a required course.

** Recommended general education course.

† Approved as part of student's master plan by the department chairman.

The "electives within major" for each of the areas of special interest will include the following courses:

	6th Sem.	7th Sem.	8th Sem.
Communications	102	133, 134, 134L, 137	135, 139, 139L, 191
Control Systems	167	102, 113L, 168	169, 169L
Digital Engineering	176	102, 174	175, 177, 177L
Electronics	102	134, 134L, 174	135, 162, 164, 175

MECHANICAL ENGINEERING

All students with the option in Mechanical Engineering follow a common program of mechanical engineering fundamentals. Opportunity to pursue areas of interest is provided through the choice of technical electives. This opportunity is afforded in the general areas of design and energy conversion. The recommended pattern for required upper division courses in mechanical engineering is as follows:

Junior Year

Fall Semester	Units	Spring Semester	Units
Engr. 103. Elect. Energy	3	Engr. 115. Fluid Mech.	3
Engr. 107. Materials and Processes	4	Engr. 115L. Fluids Lab., or	
Engr. 108. Thermodynamics	3	Engr. 103L. Elect. Engr. Lab.	1
Engr. 108L. Thermal Sci. Lab.	1	Engr. 140. Heat Transf., or	
Engr. 116. Intro. to Solid Mech.	3	Engr. 146A. Machine Des.	3
Engr. 187A. Methods of Analysis	3	Engr. 148. Engr. Thermo.	4
		Engr. 183. Simul. Engr. Sys.	3
		General Education	3
	17		17

Senior Year

Fall Semester	Units	Spring Semester	Units
Engr. 140. Heat Transfer, or		Engr. 190D. Engr.	
Engr. 146A. Machine Design	3	Applications	2
Engr. 145. Mech. of Mach.	3	*Electives within major	6
Engr. 190C. Engr. Applications	2	General Education	6
*Electives within major	6		
General education	3		14
	17		

* Approved as part of student's master plan by the department chairman.

Minor

The minor in engineering, intended for students in other academic areas of the university, consists of 15 units in engineering, nine of which must be upper division. The courses must be approved by the dean of the School of Engineering.

A. Introduction to Engineering (1)

A survey of the fields of engineering, designed to familiarize the student with the nature, the requirements, the responsibilities, and the opportunities of the profession.

1. Engineering Drawing (2) I, II

Six hours of laboratory.

Development of skills and techniques of drawing for engineers. Elementary orthographic and pictorial drawing theory. Introduction to basic theorems of descriptive geometry. Theories of size description.

2. Plane Surveying (3)

One lecture and six hours of laboratory.

Prerequisite: Mathematics 21 or 40.

Use, care, and adjustment of surveying equipment. Introduction to standard procedures, techniques of plane surveying, and plane table mapping.

10. Control of Man's Environment (3) I, II

Man's interaction with the land, water and air environment; environmental pollution; role of engineering in controlling man's environment.

20. Engineering Graphics (2) I, II

Six hours of laboratory.

Prerequisites: Credit or concurrent registration in Mathematics 40 or equivalent, and either Engineering 1 or qualification on the Engineering Graphics Placement Examination.

Graphic communication for engineers. Presentation and interpretation of engineering plans, using both standard projection systems and freehand sketching. Introduction to nomography; graphic presentation and analysis of data.

25. Engineering Materials (3) I, II

Prerequisite: Chemistry 1A.

Atomic and molecular structure of materials utilized in engineering. Analysis of the relationships between structure of materials and their mechanical, thermal, electrical, corrosion and radiation properties, together with examples of specific application to engineering problems.

30. Engineering Measurement Analysis (2) I, II

Prerequisites: Mathematics 51 and Physics 4A.

Introduction to basic standards and units of engineering measurement. Analysis of errors in measurement and error propagation in calculation. Treatment of experimental data and evaluation of experimentally determined quantities. Design of engineering experiments.

40. Engineering Problem Analysis I (2) I, II

One lecture and three hours of laboratory.

Prerequisite: Mathematics 50.

Analysis of engineering problems and solutions using the digital computer. Fundamentals of programing and programing language commands.

50A. Engineering Mechanics I (3) I, II

Prerequisites: Physics 4A and credit or concurrent registration in Mathematics 51.

Static equilibrium of particles and rigid bodies; vector algebra and calculus; friction, virtual work; kinematics of a particle; kinetics of a particle; engineering applications.

50B. Engineering Mechanics II (3) I, II

Prerequisites: Engineering 50A and credit or concurrent registration in Mathematics 52.

Kinetics of a particle; central force motion; systems of particles; work and energy; impulse and momentum; moments and products of inertia; Euler's equations of motion; vibration and time response; engineering applications.

60. Electric Circuits (3) I, II

Prerequisites: Physics 4B and Mathematics 51.

Direct-current circuits, magnetic circuits, induced voltages, single-phase alternating-current circuits, coupled circuits, the transformer and introduction to network analysis. Not open to students with credit in Engineering 100A.

100. Electrical Energy Conversion (3) I, II

Prerequisite: Engineering 60.

Magnetic circuits, transformers and polyphase AC networks. Fundamentals of electromechanical energy conversion; induction motors, synchronous machines and DC machines. Formerly Engineering 100B, Electrical Machinery.

100L. Electrical Energy Conversion Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: credit or concurrent registration in Engineering 100.

Experimental study of DC, single and polyphase AC circuits, transformers, and machines. Formerly offered as an integral part of Engineering 100B.

101. Fundamentals of Engineering Electronics (3) I, II

Prerequisite: Engineering 60.

Application of diodes, transistors, electron tubes, and thyristors, in typical electronic circuits. Analysis and design of rectifiers and filters, and elementary amplifiers. Emphasis on their utilization in engineering equipment and systems.

101L. Engineering Electronics Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: credit or concurrent registration in Engineering 101.

Experimental study of laboratory instruments, diodes, rectifier circuits, filters, silicon controlled rectifiers, tubes, transistors, and amplifiers.

102. Electric and Magnetic Fields (3) I, II

Formerly Engineering 100C.

Prerequisites: Engineering 50B and 60.

Electrostatic and magnetostatic field theory using vector notation; Coulomb's Law, Gauss' Law and potential theory. Solutions to Poisson's and Laplace's equations; capacitance and inductance. Time-varying electric and magnetic fields; Maxwell's equations.

103. Electronics, Instrumentation, and Electrical Energy Conversion (3) I, II

Prerequisite: Engineering 60.

Theory and application of electron tubes, diodes, and transistors in typical electronic circuits. Instrumentation and electronic measuring devices. Fundamentals of electromechanical energy conversion including motors and transformers.

103L. Electrical Engineering Laboratory (1) I, II

Formerly Engineering 103.

Three hours of laboratory.

Prerequisite: credit or concurrent registration in Engineering 103.

A laboratory course to include selected experiments in electrical circuits, electronics, and electrical machinery.

107. Metallic Materials and Processes (4)

Three lectures and three hours of laboratory.

Prerequisites: Engineering 25 and Physics 4C.

Physical metallurgy and properties of metals. Influence of processing on the properties of metals. Design criteria for selection of materials. (Formerly numbered Engineering 106 and 109A.)

108. Thermodynamics (3) I, II

Prerequisite: Mathematics 52.

Development of the basic laws of thermodynamics from the macroscopic and microscopic viewpoints and their application to engineering systems.

108L. Thermal Science Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Engineering 108.

Laboratory studies of the basic concepts of thermal science. (Formerly offered as an integral part of Engineering 108.)

109. Nonmetallic Materials (3) I

Two lectures and three hours of laboratory.

Prerequisite: Engineering 107.

Fundamentals of plastics, reinforced plastics, and ceramics. Analysis of effect of physical properties upon selection of a material for use in design.

110. Thermodynamics and Heat Transfer (3) I, II

Prerequisite: Mathematics 52.

First and second laws of thermodynamics; materials, heat conduction, convection, and radiation. Not acceptable for mechanical engineering majors.

111. Network Analysis (3) I, II

Formerly Engineering 130.

Prerequisites: Engineering 60 and Mathematics 52.

Loop and modal analysis using General Network Equations; network theorems; frequency and time response using poles and zeros. Two-port parameters.

112. Advanced Network Analysis (3) I, II

Formerly Engineering 132, Time-Domain Analysis of Linear Networks.

Prerequisites: Engineering 111, and 187A or Mathematics 118A.

Transient analysis of circuits containing resistance, inductance, and capacitance with various input wave forms by means of the Laplace-transform method.

113L. Analog Computation of Electrical Engineering Problems (1)

Three hours of laboratory.

Prerequisites: Engineering 101, 187A, and credit or concurrent registration in Engineering 112.

Use of the analog computer in the solution of typical electrical engineering problems.

114. Analysis and Design of Electronic Circuits (3) I, II

Formerly Engineering 134A.

Prerequisites: Engineering 101, 111, and 187A or Mathematics 118A.

A unified treatment of vacuum-tube and transistor voltage and power amplifiers utilizing graphical methods and equivalent circuits; feedback theory and tuned amplifiers.

114L. Electronic Circuits Laboratory (1) I, II

Formerly Engineering 135A.

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Engineering 114.

Vacuum-tube and transistor dynamic characteristics; single stage and multistage amplifier circuits including feedback and tuned amplifiers.

115. Fluid Mechanics (3) I, II

Prerequisites: Engineering 50B, and credit or concurrent registration in Engineering 187A.

Fluid statics. Laminar and turbulent flow of liquids and gases in pipes, nozzles, and channels. Dimensional analysis and modeling. Drag forces on moving or immersed objects.

115L. Fluid Mechanics Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Engineering 115.

Flow measuring devices. Experimental applications of continuity, Bernoulli and momentum equations. Model studies. Pipe and channel flows. Flow visualization techniques. Operating characteristics of wind tunnel and water table.

116. Introduction to Solid Mechanics (3) I, II

Prerequisites: Engineering 25 and 50B; and credit or concurrent registration in Engineering 187A.

Mechanics of solid deformable bodies involving analytical methods for determining strength, stiffness, and stability of load-carrying members.

116L. Solid Mechanics Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Engineering 116.

Laboratory studies in solid mechanics. Experimental stress analysis. Experimental confirmation of theory.

118. Transfer and Rate Processes (3) I, II

Prerequisite: Engineering 187A.

Fundamentals of rates of change in enthalpy and composition of matter; heat and mass transfer and chemical reaction rates.

120A. Structural Analysis I (4) I, II

Prerequisite: Engineering 116.

Principles of mechanics applied to analysis of beams, frames, trusses, and three-dimensional frameworks. Graphical methods, influence lines; deflections; introduction to statically indeterminate structures and moment distribution.

120B. Structural Analysis II (3) I

Prerequisite: Engineering 120A.

Analysis of statically indeterminate structures by virtual work. Advanced treatment of slope deflection, moment distribution. Arch analysis, secondary stresses in trusses. Advanced treatment of influence lines.

121. Reinforced Concrete (3) II

Prerequisite: Engineering 120A.

Properties and characteristics of reinforced concrete; design of structural components. Introduction to plastic theory and limit design.

122. Soil Mechanics (3) I

Two lectures and three hours of laboratory.

Prerequisites: Geology 53, Engineering 116, and credit or concurrent registration in Engineering 115.

Mechanics of soils; physical and mechanical properties; soil classification, compaction, swelling, consolidation, and shear strength. Laboratory tests and related design problems.

123. Applied Hydraulics (3) I

Prerequisite: Engineering 115.

Application of principles of fluid mechanics in the fields of hydrology, water supply, hydraulic machinery, drainage, and waste disposal.

124. Foundation Engineering (2) II

Prerequisite: Engineering 122.

Soil mechanics theories applied to the design of shallow and deep foundations; lateral pressure of soils; design of retaining walls.

125. Sanitary Engineering (3) II

Prerequisite: Engineering 123.

Unit processes used in water treatment and waste-water disposal; physical and chemical tests used in the analysis of water and waste-water.

127. Highway Engineering (3) I

Two lectures and three hours of laboratory.

Prerequisites: Engineering 128A and credit or concurrent registration in Engineering 123.

Highway planning, economics, and administration; geometric design; traffic engineering; subgrade structure; bituminous and portland-cement concrete pavements.

128A. Surveying for Civil Engineers (3) II

Two lectures and three hours of laboratory.

Prerequisite: Engineering 30.

Principles of plane surveying. Measurement of horizontal distance, difference in elevation, and angles. Traverse surveys and computations. Horizontal and vertical curves. Principles of stadia. Topographic surveys. Earthwork.

128B. Advanced Surveying (3) I

Two lectures and three hours of laboratory.

Prerequisite: Engineering 128A.

Theory and application of precise control surveys; cadastral surveys; specialized surveying operations.

129. Highway Materials (2) II

One lecture and three hours of laboratory.

Prerequisite: Credit or registration in Engineering 127 or Engineering 122.

Selection, design, and control of mixes of various materials used in highway engineering practice. Emphasis on strength and properties of plain concrete and asphalts.

133. Stochastic Signals (3) I

Formerly part of Engineering 196B.

Prerequisite: Engineering 187A or Mathematics 118A.

Random signals, correlation functions, power spectral densities, the Gaussian process, narrow band processes. Applications to communication systems.

134. Communication Circuits (3) I

Formerly Engineering 134B, Analysis and Design of Electronic Circuits.

Prerequisite: Engineering 114.

A continuation of Engineering 114, to include regulated power supplies, oscillators; theoretical analysis of amplitude, frequency, and phase modulation; modulator and detector circuits; switching circuits and transient response of amplifiers.

134L. Communications Circuits Laboratory (1) I

Formerly Engineering 135B, Electronic Circuits Laboratory.

Three hours of laboratory.

Prerequisite: Engineering 114L.

Regulated power supply systems; oscillator, modulator, detector, and switching circuits; superheterodyne receivers and television circuitry.

135. Modulation Theory (3)

Formerly Engineering 185.

Prerequisite: Engineering 112.

Theory and performance characteristics of modulation and demodulation; spectral characteristics and noise performance of carrier systems: amplitude, frequency and phase, pulse coded, and compound modulation.

137. Communication Networks (3) I

Prerequisites: Engineering 102, 111, and 187A or Mathematics 118A.

Theory and application of transmission lines, including analysis by matrix notation; use of Smith chart and other transmission line charts; impedance-matching with transmission line stubs and lumped constants; theory and design of constant-k, m-derived, and other types of filter networks.

139. Advanced Field Theory (3) II

Formerly Engineering 139A.

Prerequisites: Engineering 137 and credit or concurrent registration in Engineering 134, and 187B or Mathematics 118B.

Time-varying electric and magnetic fields. Application of Maxwell's equations to wave propagation; skin effect, circuit impedance elements; vector potential, and other time-varying electrical phenomena; waveguides and resonators, electromagnetic radiation.

139L. Microwave Measurements Laboratory (1) II

Formerly Engineering 139B.

Three hours of laboratory.

Prerequisites: credit or concurrent registration in Engineering 134L and 139.

Experimental study of frequency generation including klystrons, magnetrons and signal generators. Impedance, attenuation, phase, frequency, and power measurements; coaxial lines and waveguides; propagation in air, resonant cavities and antennas.

140. Principles of Heat Transfer (3) II

Prerequisites: Engineering 108 or 110; and 187A.

Heat transfer by conduction, convection, radiation, and combinations thereof; introduction to aerodynamic heating and heat transfer by phase change.

141. Internal Combustion Engines (3) I

Prerequisite: Engineering 148.

Analysis of idealized and real internal combustion engine cycles; combustion problems; performance of reciprocating and rotary types of internal combustion engines. Principles of reaction motors.

142. Elements of Energy Conversion (3) I

Formerly Fuels and Combustion.

Prerequisite: Engineering 108.

Principles of physics and chemistry applied to the analysis of a broad spectrum of energy conversion devices from an engineering point of view.

143. Gas Dynamics (3) I

Prerequisites: Engineering 108 and 115.

Thermodynamics of high velocity compressible fluid flow. Shock regions; adiabatic and diabatic flow. Applications to the propulsive duct and discharge nozzles.

144. Thermal Environmental Engineering (3)

Prerequisite: Engineering 140.

Psychrometrics. Mass transfer. Two-phase flow. Heat transfer. Thermoelectric refrigeration. Change of phase.

145. Mechanics of Machinery (3) I

Prerequisite: Engineering 40 and 50B.

An extension of the principles of statics and dynamics to mechanisms and to mechanical systems. Analysis of velocity and acceleration and the determination of static and dynamic forces. Evaluation of stability of systems.

146A. Elements of Machine Design (3) I, II

Prerequisite: Engineering 116.

Application of mechanics, physical properties of materials, and strength of materials to the design of machine elements.

146B. Advanced Machine Design (3) II

Prerequisite: Engineering 146A.

Advanced topics in strength of materials including energy methods, stress concentrations, curved beams, and thick-walled cylinders. Applications to design of machine elements.

147A. Introduction to Mechanical Vibrations (3) I

Prerequisites: Engineering 50B, 116, and 187A.

Analysis of mechanical vibration; single- and multi-degree of freedom systems; free and forced vibrations; vibration isolation; vibration absorbers. Theory of vibration measuring instruments.

147B. Experimental Vibrations (3) II

Prerequisite: Engineering 147A.

Experimental problems utilizing vibration excitation equipment, recording systems, transducers, digital and analog computers.

148. Engineering Thermodynamics (4) I

Three lectures and three hours of laboratory.

Prerequisite: Engineering 115.

Further development of the laws of classical thermodynamics. Applications to energy conversion devices.

149. Advanced Thermodynamics (3) I

Prerequisite: Engineering 148.

Cyclic and analytical methods of thermodynamic analysis. Development of general thermodynamic equations and methods of solution. Introduction to microscopic thermodynamics with application to the study of transport properties.

150A. Low Speed Aerodynamics (3) I

Prerequisites: Credit or concurrent registration in Engineering 115 and 115L.

Subsonic flow, airfoil and wing theory, experimental characteristics of wing sections, high lift devices.

150B. High Speed Aerodynamics (3) II

Prerequisites: Engineering 143 and 150A.

Supersonic flow, two- and three-dimensional compressible flow, wings in compressible flow, two- and three-dimensional method of characteristics, transonic flow.

151A-151B. Aerospace Structural Analysis (3-3) I, II

Prerequisites: Engineering 116 and credit or concurrent registration in Engineering 187B or Mathematics 118B. Engineering 151A is prerequisite to 151B.

Methods of structural analysis including both the static and dynamic aspects of problems encountered in the flight of aerospace vehicles.

152. Aircraft Propulsion Systems (3) II

Prerequisite: Engineering 148 or 150A.

Theory and performance characteristics of aircraft propulsion systems including reciprocating engines, turbo-jets, ram-jets, etc.

153A. Aerospace Flight Mechanics (3) II

Formerly Engineering 153.

Prerequisites: Engineering 50B, and 187A or Mathematics 118A.

Aerodynamics and dynamics of ballistic missiles; guidance systems; orbits and space trajectories; effects of aerodynamics, mass, rotation and shape of the earth on ballistic and space trajectories. Computer programming and problem solutions will be emphasized.

153B. Intermediate Aerospace Flight Mechanics (3) I

Prerequisite: Engineering 153A.

A continuation of Engineering 153A to include orbit determination techniques, general and special perturbations, artificial satellites, rocket dynamics and transfer orbits, earth-moon trajectories, and interplanetary trajectories.

154. Experimental Aerodynamics (2) I, II

One lecture and three hours of laboratory.

Prerequisites: Credit or concurrent registration in Engineering 150A.

Operating characteristics of subsonic and supersonic wind tunnels. Aerodynamic characteristics of wings and bodies. Flow visualization techniques. Force, moment and pressure distribution measurement. Use of hot-wire anemometer and schlieren equipment.

155. Matrix Methods in Aerospace Structures (3) II

Prerequisite: Engineering 151B.

Static and dynamic analysis of aerospace structures utilizing matrix methods.

156. Intermediate Dynamics (3)

Prerequisites: Engineering 50B, 60, and Engineering 187A or Mathematics 118A.

Kinematics and kinetics of systems of particles and rigid bodies. Dynamic analysis procedures for studying mechanical, electrical, and electromechanical systems. Variational methods.

157. Intermediate Fluid Mechanics (3)

Prerequisites: Credit or concurrent registration in Engineering 115, and Engineering 187B or Mathematics 118B.

Kinematics of fluid motion. Conservation of mass, momentum, and energy. Ideal and viscous flows and applications. Boundary-layer approximations.

158. Aircraft Design and Performance (3)

Prerequisite: Engineering 150B.

Aircraft design and evaluation including choice of airfoil and wing planform, aircraft fuselage design, control surfaces, power plants, and integration of the separate aircraft components.

159. Aircraft Stability and Control (3) I

Formerly Engineering 190G, Engineering Applications.

Prerequisites: Engineering 150A, 154, and credit or concurrent registration in Engineering 187B.

Static stability and control, general equations of unsteady motion, stability derivatives, stability of uncontrolled motion, response of aircraft to actuation of controls.

160A-160B. Principles of Chemical Engineering (3-3)

Same course as Chemistry 160A-160B.

Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A, or equivalent.

Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

161. Creativity in Design (3) II

Methods to stimulate creativity in design. Investigation of hidden blocks to creative thought. Emphasis on placing students in a design situation requiring an inventive or creative solution.

162. Transistor Circuit Analysis (3) II

Formerly Engineering 182.

Prerequisite: Engineering 114.

Analysis and design of transistor voltage and power amplifier circuits by use of duality and matrix methods. Feedback amplifiers, audio amplifiers, video amplifiers, power supplies, and oscillators; transient analysis and noise considerations.

163. Electronic Instrumentation (3)

Formerly Engineering 136.

Prerequisite: Engineering 101.

Application of electronics to the instrumentation of mechanical, hydraulic and electrical devices. Indicating and recording instruments.

164. Semiconductor Devices (3)

Formerly Engineering 192.

Prerequisite: Engineering 114.

Tunnel diodes and backward diodes, breakdown diodes, multilayer diodes, varactor diodes, silicon controlled rectifiers and switches, unijunction transistors, field effect transistors, and hot electron devices.

167. Control System Components (3) II

Formerly Engineering 131, Electromechanical Control Devices.

Prerequisites: Engineering 100, 101, and 111.

Position transducers, phase-sensitive demodulators, static magnetic and rotating amplifiers, and servo-motors. Derivation of component transfer functions.

167L. Control Systems Components Laboratory (1) II

Formerly an integral part of Engineering 131.

Prerequisite: Credit or concurrent registration in Engineering 167.

Experimental determination of transfer functions for control system components.

168. Feedback Control Systems (3) I

Formerly Engineering 138A.

Prerequisites: Engineering 112 and 114.

Analysis of regulatory systems including servomechanisms by the Laplace transform method. System performance and stability; Nyquist, Bode, and root-locus diagrams; elementary synthesis techniques. Practical components and examples of typical designs.

169. Advanced Feedback Control Systems (3) II

Prerequisite: Engineering 168.

A continuation of Engineering 168 to include feedback compensation, advanced compensation techniques, signal flow theory, state-variable techniques, introduction to non-linear and sampled-data control systems.

169L. Feedback Control Systems Laboratory (1)

Formerly Engineering 138B.

Three hours of laboratory.

Prerequisites: Engineering 114L, 167, and credit or concurrent registration in Engineering 168.

Analysis of steady-state and transient response of uncompensated and compensated feedback control systems using transfer functions and frequency response techniques.

173. Electronic Analog Systems (3) II

Formerly Engineering 193.

Prerequisite: Engineering 114.

Modern analog computers using electronic and electro-mechanical elements. Operational amplifiers, integrators, summing devices and non-linear elements.

174. Pulse and Digital Circuits (3) I

Formerly Engineering 194.

Prerequisite: Engineering 114.

Linear waveshaping, diode and transistor switching characteristics, clipping and clamping circuits, comparators, microcircuit logic elements, multivibrators, and field effect transistor switching characteristics and circuits.

175. Advanced Pulse and Digital Circuits (3) II

Prerequisite: Engineering 174.

Introduction to linear integrated circuits; linear voltage and current sweep circuits, blocking oscillators, negative resistance switching devices and circuits, analog-to-digital and digital-to-analog conversion techniques, digital storage devices and circuits.

176. Logic Design and Switching Circuits (3) I

Formerly Engineering 195.

Prerequisite: Engineering 101.

Switching algebra, Karnaugh map and Quine-McCluskey tabular methods of minimization; multiple output functions; coding and decoding; economical NAND and NOR element implementation; asynchronous sequential circuit analysis and design.

177. Advanced Logic Design and Switching Circuits (3) II

Prerequisite: Engineering 176.

Synchronous sequential circuit design: counters, shift registers, memory element properties, state assignment methods. Introduction to threshold logic.

177L. Switching Circuits Laboratory (1) II

Prerequisites: Engineering 174 and concurrent registration in Engineering 177.

Experiments involving switching applications of diodes, bipolar transistors, field effect transistors, and integrated circuits. Implementation of logic design of combinational and sequential switching systems.

180. Principles of Engineering Economy (3) I, II

Prerequisite: Engineering 115.

Analysis of the costs of development and promotion, construction, operation, depreciation and depletion. Capital recovery, income, return and yield. Valuations and appraisals, cost analysis and financial analysis. Application to engineering problems.

181. Hydrodynamics (3)

Prerequisites: Engineering 50B or Physics 105, and Engineering 187A or Mathematics 118A or 119 or 124.

Kinematics, equations of continuity, energy, and momentum of perfect fluids. Introduction to conformal transformations. Three-dimensional and two-dimensional irrotational motion, with applications to physical problems. Vector notation will be used.

183. Simulation of Engineering Systems (3) I

Two lectures and three hours of laboratory.

Prerequisites: Engineering 40 and 187A.

Analysis and design of engineering systems using modern analog and digital computers. Simulation of dynamic systems. Application to problems in mechanics, heat transfer, thermodynamics, and control systems.

184. Experimental Strain Measurements and Analysis (3)

Two lectures and three hours of laboratory.

Prerequisites: Engineering 60 and 116.

Laboratory methods for measuring deformation, strains, and forces. Emphasis on instrumentation.

186. Intermediate Solid Mechanics (3) II

Prerequisite: Engineering 116.

Shear center, curved flexural members, beams on elastic foundation, flat plates, torsion of non-circular sections, thick-walled cylinders, stress concentrations, energy methods.

187A-187B. Methods of Analysis (3-3) I, II

Prerequisite: Mathematics 52; Engineering 187A is a prerequisite for Engineering 187B.

Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing analytical methods, analogs, dimensional analysis and the theory of models.

188. Digital Solutions of Engineering Problems (3) I, II

Prerequisites: Engineering 40 or Mathematics 7, and Engineering 187A.

Digital solution of classes of engineering problems. Application of numerical methods with consideration of limitations imposed by computer and programming language characteristics.

189. Automatic Control Systems (3) II

Prerequisites: Engineering 50B, 100B, and 187A.

Not open to students filing an electrical engineering master plan.

Analysis of the output-input characteristics of linear, mechanical, electrical, hydraulic, and pneumatic control systems.

190A. Civil Engineering Structural Design (3) II

One lecture and six hours of laboratory.

Prerequisites: Engineering 120A and 122.

Structural design in steel; structural connections; tension and compression members; beams; building code requirements applied to design of buildings of various structural materials including steel.

190C-190D. Mechanical Engineering Applications (2-2) I, II

Six hours of laboratory.

Prerequisites for 190C: Engineering 106, 108, and 116.

Prerequisites for 190D: Engineering 145, 146A, 148, and 190C.

Applications of engineering principles to design of machinery and energy conversion systems. Individual student projects.

190G-190H. Aerospace Engineering Applications (2-2) I, II

Six hours of laboratory.

Prerequisites for 190G: Engineering 150B, 151A, and 154.

Prerequisite for 190H: Engineering 190G.

Student projects in aerospace design.

191. Microwave Devices (3)

Prerequisite: credit or concurrent registration in Engineering 139.

Varactor diodes and applications, microwave switches, limiters and phase shifters, detector and mixer diodes and circuits, avalanche transit-time devices, bulk-effect devices, microwave transistors and circuits.

196A-196B. Advanced Engineering Topics (1-3, 1-3), I, II

Prerequisites: Minimum grade point average of 2.0 in engineering or approval of the Academic and Ethical Standards Committee of the School of Engineering.

Modern developments in engineering. Six units maximum credit for any combination of Engineering 196A, 196B, and 199. (Formerly numbered Engineering 196.)

Aerospace Engineering

- AE 200. Seminar (1–3)**
- AE 202. Aeroelasticity (3)**
- AE 204. Flight Dynamics—Stability and Control (3)**
- AE 205. Flight Dynamics—Theory of Flight Paths (3)**
- AE 222. Aerothermal Structural Analysis (3)**
- AE 241. Hydrodynamic Stability (3)**
- AE 242. Theory and Aerodynamics of Transonic Flight (3)**
- AE 243. Supersonic Flow Theory (3)**
- AE 244. Hypersonic Flow Theory (3)**
- AE 245. Magnetofluidmechanics (3)**
- AE 246. Rarefied and Real Gas Flows (3)**
- AE 250. Principles of Electromagnetic Propulsion (3)**
- AE 253. Seminar on Boundary Layer Topics (3)**
- AE 296. Advanced Topics in Aerospace Engineering (2 or 3)**
- AE 297. Research (1–3)**

Civil Engineering

- CE 200. Seminar (2 or 3)**
- CE 201. Advanced Theory of Structures (3)**
- CE 202. Design of Thin Shell Structures (3)**
- CE 203. Plastic Design in Steel (3)**
- CE 204. Advanced Problems in Structural Design (3)**
- CE 205. Prestressed Concrete Structures (3)**
- CE 206. Matrix Analysis of Structures (3)**
- CE 207. Dynamics of Structures (3)**
- CE 208. Numerical Methods in Structural Engineering (3)**
- CE 209. Computer Analysis of Structures (3)**
- CE 210. Finite Element Analysis of Structures (3)**
- CE 220. Traffic Engineering (3)**
- CE 221. Airport Engineering (3)**
- CE 230. Open Channel Hydraulics (3)**
- CE 231. Engineering Hydrology (3)**
- CE 232. Fluvial Hydraulics (3)**
- CE 235. Water Quality Engineering (3)**
- CE 236. Water Quality Processes I (3)**
- CE 237. Water Quality Processes II (3)**
- CE 240. Advanced Soil Mechanics (3)**
- CE 241. Advanced Foundation Engineering (3)**
- CE 242. Seepage and Earth Dams (3)**

- CE 243. Experimental Soil Mechanics (2)**
- CE 244. Soil Structure Interaction (3)**
- CE 280. Seminar in Structural Engineering (2 or 3)**
- CE 281. Seminar in Transportation Engineering (2 or 3)**
- CE 282. Seminar in Soil Mechanics and Foundation Engineering (2 or 3)**
- CE 283. Seminar in Hydraulic Engineering (2 or 3)**
- CE 284. Seminar in Sanitary Engineering (2 or 3)**
- CE 285. Seminar in Construction Engineering (2 or 3)**
- CE 296. Advanced Topics in Civil Engineering (2 or 3)**
- CE 297. Research (1-3)**

Electrical Engineering

- EE 200. Seminar (1-3)**
- EE 201. Seminar in Electromagnetic Systems (1-3)**
- EE 202. Seminar in Electronic Design (1-3)**
- EE 203. Seminar in Digital Systems (1-3)**
- EE 204. Seminar in Feedback Control Systems (1-3)**
- EE 210. Linear System Analysis (3)**
- EE 211. Linear System Synthesis (3)**
- EE 212. Synthesis of Linear Active Networks (3)**
- EE 214. Computer-aided Network Analysis and Design (3)**
- EE 216. Noise in Electrical Devices (3)**
- EE 220. Feedback Control Systems (3)**
- EE 222. Sampled-Data Systems (3)**
- EE 224. Non-Linear Feedback Control Systems (3)**
- EE 225. State Space Analysis of Control Systems (3)**
- EE 226. Optimal Control Systems (3)**
- EE 230. Topics in Logic Design (3)**
- EE 232. Transistor Circuit Design (3)**
- EE 234. Semiconductor RF Circuit Design (3)**
- EE 236. Electronic Digital Systems (3)**
- EE 240. Radiation and Propagation (3)**
- EE 242. Microwave Networks (3)**
- EE 244. Microwave Antennas (3)**
- EE 246. Radar Systems (3)**
- EE 250. Quantum Electronics (3)**
- EE 252. Optical Communications (3)**
- EE 296. Advanced Topics in Electrical Engineering (2 or 3)**
- EE 297. Research (1-3)**

Engineering

E 290. Problem Analysis (3)

E 298. Special Study (1-3)

E 299. Thesis or Project (3)

Engineering Mechanics

EM 200. Seminar (2 or 3)

EM 201. Advanced Dynamics (3)

EM 203. Theory of Vibrations (3)

EM 204. Theory of Nonlinear Vibrations (3)

EM 205. Theory of Random Vibrations (3)

EM 210. Continuum Mechanics (3)

EM 221. Theory of Elasticity (3)

EM 222. Theory of Anisotropic Elasticity (3)

EM 223. Energy Methods in Mechanics (3)

EM 225. Theory of Plates (3)

EM 226. Theory of Shells (3)

EM 227. Theory of Elastic Stability (3)

EM 233. Theory of Plasticity (3)

EM 243. Advanced Fluid Mechanics I (3)

EM 244. Advanced Fluid Mechanics II (3)

EM 296. Advanced Topics in Engineering Mechanics (2 or 3)

EM 297. Research (1-3)

Mechanical Engineering

ME 200. Seminar (2 or 3)

ME 201. Seminar in Thermodynamics and Fluid Flow (2 or 3)

ME 202. Seminar in Cryogenics (2 or 3)

ME 203. Seminar in Engineering Materials (2 or 3)

ME 204. Seminar in Engineering Systems (2 or 3)

ME 205. Seminar in Operations Research in Engineering (2 or 3)

ME 206. Seminar in Nuclear Engineering (2 or 3)

ME 207. Seminar in Mechanical Design (2 or 3)

ME 220A-220B. Mechanical Vibrations (3-3)

ME 221. Stress Analysis (3)

ME 222A-222B. Synthesis of Machines (3-3)

ME 224. Fluid Power and Control Systems (3)

ME 231A. Advanced Science of Materials I (3)

ME 231B. Advanced Science of Materials II (3)

- ME 233. Reactor Materials (3)**
- ME 234. High Temperature Materials (3)**
- ME 246. Advanced Topics in Automatic Controls (3)**
- ME 250. Analytical Thermodynamics (3)**
- ME 260. Conduction Heat Transfer (3)**
- ME 262. Convection Heat Transfer (3)**
- ME 264. Radiation Heat Transfer (3)**
- ME 267. Cryogenic Engineering (3)**
- ME 270. Gas Dynamics (3)**
- ME 274. Boundary Layers in Internal Flows (3)**
- ME 276. Bearing Design and Lubrication (3)**
- ME 280. Aircraft and Missile Propulsion (3)**
- ME 281. Propulsion Systems for Spacecraft (3)**
- ME 284. Theory of Turbomachines (3)**
- ME 285. Direct Energy Conversion (3)**
- ME 296. Advanced Topics in Mechanical Engineering (2 or 3)**
- ME 297. Research (1-3)**

School of Social Work

Kurt Reichert, *Dean*; Joseph B. Kelley, *Associate Dean*

Accreditation

The graduate program of the School is accredited by the Commission on Accreditation of the Council on Social Work Education.

Program and Objectives

The School of Social Work offers a two-year graduate curriculum leading to the Master of Social Work degree under approval granted by the Trustees of the California State Colleges in May, 1963. The School also offers a program of professional education which commences in the undergraduate curriculum and continues through one calendar year of graduate work, leading to the Master of Science in Social Work degree. The curriculum was approved in January, 1969, on an experimental basis for a four-year period effective in September, 1970, by the Accreditation Commission of the Council on Social Work Education. Only students completing the undergraduate major in social welfare at San Diego State or its equivalent can be considered for this program.

The objectives of the School of Social Work at San Diego State are to equip students with the essential knowledge, philosophy and basic skills for their responsible entry into the profession of social work. In order to achieve these objectives, the School will assist students: to develop a philosophy which recognizes individual human welfare as the purpose and goal of social policy; to acquire attitudes which will permit the development and maintenance of professional relationships and professional standards; to develop the discipline and self-awareness essential to the professional social worker; to attain a level of competence necessary for beginning professional practice; and to accept responsibility for the continued development of their competence in the practice of social work.

For detailed information regarding admission to the School and to its graduate curriculum, see the Graduate Bulletin.

Faculty

Emeritus: Witte

Professors: Guzzetta, Kelley, Lee, W., Maxwell, Morgan, R., Ontell, Reichert, Stumpf, Tebor, Weinberger

Associate Professors: Andresen, Brennen, Griffin, Haworth, G., Horowitz, Ishikawa, Kahn, Kessel, Manis, Pilcher, A., Pilcher, D.

Assistant Professors: Ajemian, Anderson, D. M., Baily, Bistriz, Clary, Cohen, L., Fletcher, Fort, Gilliam, Guidry, Haworth, J., Herman, Hollander, Raymer, Ridders, Sardinas, Totman, Watson, C., Watson, E.

Lecturers: Lucius, Seargeant

Appointed under Outside Grants

Assistant Professor: Sotomayor

Lecturers: Aikens, Anderson, Brewer, Kukkonen, Manos, Schiffirin, Shenko, Treske, Weissman

Offered by the School of Social Work

Master of Science in Social Work

Master of Social Work

Major in social welfare with the A.B. in liberal arts and sciences

Minor in social welfare

Social Welfare Major with the A.B. in Liberal Arts and Sciences

This major provides the undergraduate portion of the program leading to the Master of Science in Social Work. In addition, it serves broad educational purposes in providing preparation for more effective participation in community affairs based on an understanding of contemporary social welfare programs. It prepares for immediate employment in those social welfare positions which do not require professional social work education at the graduate level, and it qualifies one for admission to graduate professional schools of social work.

Preparation for the major. Anthropology 1C; Economics 1A-1B; Psychology 1; Sociology 1, 10, 60 (24 units).

Recommended: Biology 1 and 2, Political Science 1 and 2, and courses in physiology.

Major. A minimum of 30 upper division units to include: Social Welfare 100A-100B, 180A-180B, 182, and 189A-189B; Sociology 140 or Psychology 145; three units selected from Psychology and three units selected from Sociology.

Recommended: Social Welfare 187 (strongly recommended for those students planning to seek admission to the San Diego State School of Social Work), Sociology 122, Psychology 106, Biology 159, and courses from anthropology, literature, history, philosophy, political science, economics, psychology, and sociology. Students should consult with their adviser in social welfare for selection and arrangement of courses.

Social Welfare Minor

The minor consists of 15 units in social welfare, nine units of which must be in upper division courses.

Social Welfare

30. Contemporary Courtship and Marriage (3) I, II

Developing understanding and ability to evaluate various concepts, attitudes and value systems as they relate to contemporary courtship, marital and family relationships. Assist students in coping with interpersonal relationships. Not open to students with credit in Home Economics 35, Sociology 35, or other lower division course in courtship and marriage or marriage and the family. (Formerly numbered Social Welfare 35.)

80. Introduction to Social Welfare (3) I, II

Two lectures and three hours of field observation.

Orientation to the field of social welfare. Readings, class discussions, and observation of social welfare activities in the community.

100A-100B. Man in Society (3-3) I, II

Prerequisites: Biology 1 and 2, Psychology 1, and Sociology 1; Social Welfare 100A is a prerequisite to 100B.

Biological, psychological, and social aspects of human growth and development from birth to death. Integration of concepts from various disciplines.

180A-180B. Social Welfare as a Social Institution (3-3) I, II

Prerequisites: Sociology 1 and 10; Social Welfare 180A is prerequisite to 180B. The institutional nature of social welfare and its relationship to other institutions in society.

182. Social Work as a Profession (3) I, II

Prerequisite: Social Welfare 100B and 180B.

Social work as a profession; its philosophical bases, values, norms, functions, methods, and occupational roles.

185. Public Welfare (3) I, II

A historical and current perspective of public welfare. Analysis of current programs of social insurance, public assistance, general relief, and other public welfare policies and programs.

187. Current Developments in Social Work (3) I, II

Prerequisites: Sociology 60; Social Welfare 100B and 180B.

Sources, nature, and uses of social work theory and research. Application of the principles of scientific analysis to the study of social welfare institutions and the practice of social work.

189A-189B. Field Experience in Social Welfare (3-3) I, II

Two lectures and eight hours of field experience.

Prerequisites: Social Welfare 100B and 180B; Social Welfare 189A and credit or concurrent registration in 182 are prerequisite to 189B.

Laboratory field assignments in selected social welfare activities.

197. Investigation and Report (3) I, II

Prerequisite: Consent of instructor.

Analysis of special topics in social welfare.

Social Work

200. Social Welfare Policy and Services I (2)

201. Social Welfare Policy and Services II (2)

202. Social Welfare Policy and Services III (2)

203. Social Welfare Policy and Services IV (2)

205. Social Work Administration I (2)

220. Human Behavior and Social Environment I (4)

221. Human Behavior and Social Environment II (2)

222. Human Behavior and Social Environment III (2)

230. Social Work Practice I (2)

231. Social Work Practice II (2)

232. Social Work Practice III (2)

233. Social Work Practice IV (2)

234. Social Work Practice V (2)

235. Social Work Practice VI (2)

236. Social Work Practice VII (4)

237. Social Work Practice VIII (4)

238. Social Work Practice IX (8) S

250. Field Instruction I (4)

251. Field Instruction II (4)

252. Field Instruction III: Individuals, Families, and Groups (4-5)

253. Field Instruction IV: Individuals, Families, and Groups (4-5)

255. Field Instruction V: Organizations and Communities (4-5)

256. Field Instruction VI: Organizations and Communities (4-5)

270. Seminar. Social Work Analysis (1-4)

- 271. Seminar. Current Social Issues (1-4)
- 290A-290B. Social Work Research Methods and Analysis (2-2)
- 291 Seminar (2-3)
- 297A-297B. Research (2-2)
- 298. Special Study (1-3)

Faculty and Officers of Administration 1970-1971

-
- LOVE, MALCOLM A. (1952).....President
A.B., Simpson College; M.A., Ph.D., University of Iowa; LL.D., Simpson College; L.H.D., Colorado State College; LL.D., University of Nevada; LL.D., University of San Diego.
- ABBOTT, MITCHEL T. (1964).....Associate Professor of Chemistry
B.Sc., Ph.D., University of California, Los Angeles.
- ACKERLY, ROBERT S., JR. (1963).....Associate Dean, Staffing and Reporting
B.A., College of Wooster; A.M., Colgate University; Ed.D., Indiana University.
- ACKLEY, JOHN W. (1947).....Professor of Speech Communication
A.B., University of Redlands; A.M., Ph.D., University of Southern California.
- ADAMS, EILEEN (Mrs. H. L.) (1949).....Assistant Education Resource Center Librarian
A.B., Willamette University; B.S. in L.S., University of Denver.
- ADAMS, WILLIAM J. (1955).....Professor of Speech Communication
B.S., McMurry College; M.A., Northwestern University; Ph.D., Stanford University.
- AGARWAL, SOHAN L. (1969).....Assistant Professor of Civil Engineering
B.Sc., Panjab Engineering College, India; M.E., Roorkee University, India; Ph.D., University of Texas.
- †AGUIRRE, EDWARD (1963).....Associate Professor of Industrial Arts
B.A., M.A., Ed.D., Arizona State University.
- AJEMIAN, JAMES A. (1970).....Assistant Professor of Social Work
B.A., Harvard College; M.S., Columbia University; Ph.D. candidate, University of Michigan.
- AKERS, FRED C. (1966).....Associate Professor of Marketing
B.S., University of Missouri; M.B.A. (Marketing), Northwestern University; M.B.A. (Economics), Ph.D., University of Chicago.
- ALEXANDER, JAMES B. (1967).....Associate Professor of Botany
A.B., San Diego State College; M.S., Ph.D., University of California.
- ALF, EDWARD F., JR. (1963).....Professor of Psychology
A.B., San Diego State College; Ph.D., University of Washington.
- ALLISON, EDWIN C. (1960).....Professor of Geology
B.S., M.A., Ph.D., University of California.
- ALMOND, FRANK W. (1968).....Assistant Professor of Music
A.B., M.A., San Diego State College; Ph.D., Florida State University.
- ALTAMURA, NICHOLAS C. (1967).....Assistant Professor of French
B.S., Ithaca College; M.Ed., University of Arizona; Ph.D., Arizona State University.
- AMBLE, KJELL (1962).....Professor of Drama
B.A., Denison University; M.A., Ph.D., Northwestern University.
- AMBRIANO, JOHN D. (1969).....Assistant Sciences Librarian
B.A., University of Oklahoma; M.L.S., Columbia University.
- ANDERES, EUGENE A. (1968).....Assistant Professor of Microbiology
A.B., M.S., San Diego State College; Ph.D., Oregon State University.
- ANDERSON, ALLAN W. (1962).....Professor of Philosophy
B.A., Washington Missionary College; M.A., Trinity College; Ph.D., Columbia University.
- ANDERSON, ARTHUR J. O. (1961).....Professor of Anthropology
A.B., San Diego State College; M.A., Claremont Colleges; Ph.D., University of Southern California.
- ANDERSON, DEL M. (Mrs. E. F.) (1969).....Assistant Professor of Social Work
A.B., M.S.W., San Diego State College.
- ANDERSON, DWIGHT G. (1969).....Assistant Professor of Political Science
B.A., University of Montana; M.A., Ph.D. candidate, University of California.
- ANDERSON, EVANS L. (1954).....Professor of Elementary Education
B.A., Gustavus Adolphus College; M.A., University of Minnesota; Ed.D., University of Denver.
- †ANDERSON, GRAYDON K. (1949).....Professor of Economics
A.B., Willamette University; Ph.D., University of Wisconsin.
- ANDERSON, HAYES L. (1966).....Assistant Professor of Telecommunications and Film
B.A., Oregon State University; M.A. and additional graduate study, Michigan State University.
- ANDERSON, LEE R. (1968).....Assistant Professor of Physical Science
B.S., Stanford University; M.A., University of Oregon; M.S., Ph.D., Oregon State University.
- †ANDERSON, PAUL S. (1955).....Professor of Elementary Education
A.B., Colorado State College; M.S., Ph.D., University of Wisconsin.

†On leave, year 1970-71.

†On leave, spring 1970-71.

- ANDERSON, PAUL V. (1954).....Professor of Music
B.M., North Texas State College; M.M., University of Wisconsin.
- ANDERSON, W. CARLISLE (1955).....Professor of Industrial Arts
B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.
- ANDERSON, ZOE E. (1965).....Associate Professor of Home Economics
B.S., Illinois Institute of Technology; M.S., Ph.D., University of Illinois.
- ANDRAIN, CHARLES F. (1964).....Professor of Political Science
B.A., Whittier College; M.A., Ph.D., University of California.
- ANDRESEN, GRACE E. (Mrs.) (1970) (Under contract 1968-70)
Associate Professor of Social Work
B.S., University of Illinois; M.S.W., Tulane University.
- ANDRUS, RUTH (1962).....Professor of Physical Education
B.S., Utah State University; M.S., University of Oregon; Ph.D., State University of Iowa.
- ANGIONE, RONALD J. (1969).....Assistant Professor of Astronomy
A.B., M.S., San Diego State College; Ph.D., University of Texas.
- ANINGER, THOMAS (1967).....Assistant Professor of English
B.A., M.A., Ph.D., University of California, Los Angeles.
- ANNAS, ALICIA M. (1970).....Assistant Professor of Drama
A.B., University of Detroit; M.F.A., University of Texas.
- ANTHONY, SALLY M. (Mrs.) (1965).....Associate Professor of Secondary Education
A.B., University of California, Los Angeles; Ed.M., Ed.D., Rutgers University.
- APPLE, JOE A. (1947).....Professor of Secondary Education
A.B., Southeastern State College; M.A., University of Oklahoma; Ed.D., Teachers College, Columbia University.
- †APPLEBY, JOYCE O. (Mrs. A.) (1967).....Associate Professor of History
B.A., Stanford University; M.A., University of California, Santa Barbara; Ph.D., Claremont Graduate School.
- ARCHER, ELLIS C. (1956).....Professor of Information Systems
B.S., Northwestern State College; M.S., University of Kansas; Ed.D., Stanford University.
- AREFMAN, MARILYN B. (Mrs. H. T.) (1969).....Lecturer in Sociology
A.B., M.A., San Diego State College.
- ATCHISON, THOMAS J. (1965).....Associate Professor of Management
A.B., Stanford University; M.B.A., University of California, Los Angeles; D.B.A., University of Washington.
- ATKINS, MICHAEL D. (1970).....Associate Professor of Zoology
B.A., M.Sc., University of British Columbia; Ph.D., Oregon State University.
- ATKINSON, BEATRICE (1954).....Associate Professor of Nursing
B.S., College of St. Scholastica; M.A., San Diego State College.
- AUSTIN, JOAN F. (1970).....Assistant Professor of Art
B.A., California State College, Long Beach; M.F.A., Cranbrook Academy of Art.
- AWBREY, FRANK T. (1964).....Associate Professor of Biology
B.A., University of California, Riverside; M.A., Ph.D., University of Texas.
- AYALA, REYNALDO (1969).....Assistant Professor of Geography, Imperial Valley
B.A., University of Minnesota; M.A., Ph.D., Southern Illinois University.
- BABICH, ROGER M. (1970).....Assistant Professor of Speech Communication
B.S., Western Illinois University; M.A., Ph.D. candidate, University of Colorado.
- BABILOT, GEORGE (1956).....Professor of Economics
A.B., Hastings College; M.A., University of Nebraska; Ph.D., University of Oregon.
- BACON, RICHARD P. (1963).....Lecturer in Mathematics
A.B., M.A., Miami University, Ohio.
- BAER, ADELA S. (1962).....Professor of Biology
B.S., University of Illinois; Ph.D., University of California.
- BAILEY, ALLAN R. (1968).....Associate Professor of Accounting
B.S., San Diego State College; M.B.A., Ph.D., University of California, Los Angeles.
- BAILEY, BARBARA ANN (Mrs. J. J.) (1966).....Assistant Professor of Nursing
B.S. (Nursing), College of St. Catherine, Minnesota; M.S., University of Michigan.
- BAILEY, GERALD D. (1964).....Associate Professor of Industrial Arts
B.A., M.A., Central Washington State College; Ed.D., University of Missouri.
- BAILY, KAMILLA U. (Mrs.) (1966).....Assistant Professor of Social Work
B.A., M.S.W., University of Denver; additional graduate work, University of Southern California and Bryn Mawr College.
- BAKER, CARROLL M. (1964).....Associate Director of Libraries, Technical Services
A.B., University of California, Los Angeles; M.A., University of Chicago.
- BAKER, CLIFFORD H. (1937).....Professor of Spanish
A.B., San Diego State College; M.A., University of California; Ph.D., University of Southern California.
- BAKER, DOUGLAS L. (1954).....Professor of Elementary Education
A.B., Lynchburg College; M.S., Ed.D., University of Southern California.

† On leave, year 1970-71.

- BAKER, JAMES R. (1956, except 1961-62).....Professor of English
B.A., M.A., Ph.D., University of Denver.
- BAKER, KEEFE L. (1965).....Associate Professor of Art
B.F.A., University of Colorado; M.F.A., State University of Iowa.
- BALDOCK, ALVIN O. (1969).....Lecturer in Physical Education
B.S., M.S., University of Southern California.
- BALDOCK, CORNELIA (Mrs. D.) (1969).....Assistant Professor of Sociology
B.A. (Social Sciences), B.A. (History), M.A., University of Leiden, Holland; Ph.D., University of Canterbury, New Zealand.
- BALDWIN, ELMER D. (1963).....Associate Professor of Education, Imperial Valley
B.A., College of the Pacific; M.A., University of Connecticut; Ed.D., Washington State University.
- BALLANTINE, FRANCIS A. (1949).....Professor of Education
A.B., Michigan State Normal College; A.M., Ph.D., University of Michigan.
- BARBER, WILLIAM F. (1959).....Professor of Marketing
B.B.A., M.B.A., D.B.A., University of Washington.
- BARCKLEY, ROBERT E. (1955).....Professor of Economics
B.S., University of North Dakota; M.A., Columbia University; Ph.D., University of Illinois.
- BARCLAY, A. BERNICE (1962).....Reference Librarian
A.B., San Diego State College; M.A. in L.S., University of Denver.
- BARNES, ALFRED C., JR. (1968).....Assistant Professor of Health Science and Safety
B.A., M.A., Arizona State University; H.S.D., Indiana University.
- BARONE, JOAN F. (1960).....Assistant Professor of Physical Education
B.S., Sargent College, Boston University; M.S., Springfield College, Massachusetts.
- BARRERA, ERNESTO M. (1969).....Assistant Professor of Spanish
Doctor en Leyes, University of Cartagena, Colombia; A.M., Ph.D., University of Southern California.
- †BARRY, JOHN J. (1969).....Assistant Professor of English
B.A., College of William and Mary; M.B.A., Harvard University; Ph.D. candidate, University of Colorado.
- BARTHOLOMEW, FRANCIS M., JR. (1967).....Assistant Professor of History
B.A., University of California; M.A., Ph.D., Princeton University.
- BASSETT, ALLEN M. (1961).....Associate Professor of Geology
B.A., Amherst College; M.A., Ph.D., Columbia University.
- †BAUER, EDWARD G. (1956).....Professor of Mechanical Engineering
B.S., U.S. Naval Academy; M.S. and additional graduate study, University of California.
- †BAXTER, ROBERT J. (1962).....Associate Professor of Art
B.S., M.S., M.F.A., University of Wisconsin.
- BAXTER, WILLIAM L. (1963).....Professor of Microbiology
A.B., Ph.D., University of California, Los Angeles.
- BEARNSON, LEROY W. (1970).....Assistant Professor of Electrical and Electronic Engineering
B.S.E.E., University of Utah; M.S.E.E., Syracuse University; Ph.D., Auburn University.
- BECKER, GEORGE J. (1969).....Assistant Professor of Elementary Education
B.A., St. Peter's College; M.A., Fordham University; Ph.D., New School for Social Research.
- BECKER, GERALD A. (1958).....Professor of Mathematics
B.A., M.S., Ph.D., State University of Iowa.
- BECKLUND, LESTER A. (1967).....Associate Professor of Secondary Education
B.S., M.Ed., Ph.D., University of Minnesota.
- BEDORE, ROBERT L. (1959).....Professor of Mechanical Engineering
B.S.M.E., M.S.M.E., Purdue University. Registered Professional Mechanical Engineer.
- BEE, CLIFFORD P. (1969).....Assistant Professor of Secondary Education
B.A., M.A., Western Michigan University; Ph.D., Michigan State University.
- BELCHER, DAVID W. (1957).....Professor of Management
B.B.A., M.A., Ph.D., University of Minnesota.
- BENDER, STEPHEN J. (1970).....Assistant Professor of Health Science and Safety
B.S., Brockport State University; M.S., H.S.D., Indiana University.
- BENJAMIN, ROBERT L. (1953).....Professor of Speech Communication
A.B., University of California; M.S., Ph.D., University of Wisconsin.
- BENNETT, LARRY E. (1970).....Associate Professor of Chemistry
B.S., San Diego State College; Ph.D., Stanford University.
- BENSON, JACKSON J. (1966).....Associate Professor of English
A.B., Stanford University; M.A., San Francisco State College; Ph.D., University of Southern California.
- BENTON, CARL W. (1948).....Professor of Physical Education
B.S., University of California, Los Angeles; M.S., Ed.D., University of Southern California.
- BERG, MARLOWE J. (1970).....Assistant Professor of Elementary Education
B.S., M.A., Ph.D., University of Minnesota.
- BERG, ROBERT V. (1963).....Associate Professor of Art
B.S., Moorhead State College, Minnesota; M.F.A., University of Minnesota.

†On leave, year 1970-71.

- *BERGE, DENNIS E. (1963)..... Professor of History
A.B., M.A., San Diego State College; Ph.D., University of California.
- BERRY, RICHARD W. (1961)..... Associate Professor of Geology
B.S.E.M., Lafayette College; M.A., Ph.D., Washington University.
- BEVERAGE, DAVID G. (1968)..... Assistant Professor of Mathematics
A.B., San Diego State College; M.S., University of Wisconsin; Ph.D., University of Florida.
- †BIALY, RERNATE S. (Mrs. J. J.) (1969)..... Assistant Professor of Russian
B.A., M.A., University of California; Ph.D. candidate, University of California, Los Angeles.
- BIGELOW, MARYBELLE S. (Mrs. K. G.) (1956)..... Professor of Art
A.B., M.A., University of California, Los Angeles; additional graduate study, Teachers College, Columbia University, and University of California.
- BIGGER, W. RICHARD (1952)..... Professor of Public Administration and Urban Studies
B.A., M.A., University of Wisconsin; Ph.D., University of California, Los Angeles.
- BIGGS, MILLARD R. (1958)..... Associate Dean of Graduate Studies; Professor of Music
B.M., Youngstown University; M.F.A., Ohio University; Ph.D., University of Iowa.
- BILTERMAN, HENRY L. (1956)..... Assistant Professor of Mechanical Engineering
B.S.E.E., University of Iowa; M.A., San Diego State College.
- BIRCH, AILEEN J. (Mrs. C. E.) (1949)..... Assistant Professor of Elementary Education
A.B., M.A., San Diego State College.
- BISTRITZ, RICHARD M. (1968)..... Assistant Professor of Social Work
A.B., Lehigh University, Pa.; M.S.W., University of Pennsylvania.
- BLACK, BARBARA B. (1970)..... Assistant Professor of Nursing
R.N., E. W. Sparrow Hospital School of Nursing; B.S., University of Minnesota; M.S., Indiana University.
- ‡BLACKMON, DORA M. (Mrs. J.) (1968)..... Professor of Nursing
B.S., University of Miami; A.M., Columbia University; Ph.D., University of Washington.
- BLACKMUN, RUPERT B. (1970)..... Assistant Professor of Industrial Arts
B.A., M.A., San Jose State College.
- BLANC, SAM S. (1966)..... Associate Professor of Elementary Education
A.B., Colorado State College; M.A., Ed.D., University of Denver.
- BLICK, JAMES D. (1966)..... Associate Professor of Geography
A.B., M.A., Ph.D., University of California, Los Angeles.
- BLOCK, RUSSELL L. (1969)..... Assistant Professor of Business Law
A.B., San Diego State College; J.D., University of California.
- BLYTH, JOHN D. (1957)..... Professor of Music
B.M., M.M., Illinois Wesleyan University; Ed.D., Teachers College, Columbia University.
- BOE, ALFRED F. (1968)..... Assistant Professor of English
B.A., M.A., Ph.D. candidate, University of Arizona.
- BOHMER, PETER G. (1970)..... Assistant Professor of Economics
B.S., Ph.D. candidate, Massachusetts Institute of Technology.
- BOHNSACK, KURT K. (1956)..... Professor of Zoology
B.S., Ohio University; M.S., Ph.D., University of Michigan.
- BONEY, ELAINE E. (1963)..... Associate Professor of German
A.B., University of Kansas; M.A., University of Wisconsin; Ph.D., University of Texas.
- BOSKIN, WARREN D. (1965)..... Associate Professor of Health Science and Safety
B.S., Brooklyn College; M.S., University of Illinois; Ed.D., West Virginia University.
- BOTKIN, PATRICIA T. (Mrs.) (1969)..... Assistant Professor of Elementary Education
B.S., M.S., Brockport State Teachers College; Ed.D., University of Rochester.
- BOWEN, ANDREW J., JR. (1968)..... Assistant Professor of Psychology
B.A., Aurora College; B.D., Garrett Theological Institute; M.A., Ph.D., University of Florida.
- *BOWNE, WILLIAM F. (1959)..... Assistant Professor of Art
B.Ed., M.A., University of California, Los Angeles.
- BRADFORD, MARY (1969)..... Physician
A.B., Barnard College, Columbia University; M.D., Temple University.
- BRADLEY, WALLACE W. (1961)..... Assistant Professor of Secondary Education
B.S., University of Maryland; M.A., San Diego State College.
- BRANAN, ALVORD G. (1969)..... Assistant Professor of French
B.A., University of Florida; M.A., Middlebury College; Ph.D. candidate, Tulane University.
- BRANDT, CHARLES L. (1957)..... Professor of Biology
B.A., Ph.D., Stanford University.
- BRANSTETTER, R. DEANE (1955)..... Professor of Mathematics
B.S., B.A., Northeast Missouri State Teachers College; M.S., State University of Iowa; Ph.D., Iowa State College.
- BRASHERS, HOWARD C. (1968)..... Assistant Professor of English
B.A., University of California; M.A., San Francisco State College; Ph.D., University of Denver.
- BRAY, HENRY G. (1962)..... Associate Professor of Mathematics
A.B., San Diego State College; M.S., Ph.D., Iowa State University.

*On leave, fall 1970-71.

†On leave, spring 1970-71.

‡On leave, year 1970-71.

- BRENNEN, EARL C. (1968).....Associate Professor of Social Work
A.B., San Francisco State College; M.S.W., D.S.W., University of California.
- BRIDENSTINE, DON C. (1956).....Professor of Economics
B.S., University of Oregon; A.M., Ph.D., University of Southern California.
- BRIGGS, ROBERT M. (1957).....Professor of Secondary Education
A.B., Colorado State College of Education; M.A., Stanford University; Ed.D., Colorado State College of Education.
- BROADBENT, HARRY H. (1949).....Associate Professor of Physical Education
A.B., University of Oklahoma; M.S., University of Pennsylvania.
- BRODSHATZER, ARTHUR (1956).....Professor of Accounting
B.B.A., City College of New York; M.B.A., New York University; D.B.A., University of Southern California; Certified Public Accountant.
- *BROOKES, JOHN A. (1964).....Associate Professor of Biology
A.B., Occidental College; M.S., San Diego State College; Ph.D., University of Southern California.
- BROWN, CAROL M. (Mrs. R. D.) (1969).....Instructor in Nursing
B.S., Walla Walla College; M.S., Loma Linda University.
- BROWN, WILLIAM L. (1962).....Assistant Professor of Electrical and Electronic Engineering
B.S.E.E., Professional Degree in Electrical Engineering, Mississippi State University.
- BRUCE, PAUL (1957).....Professor of Counselor Education
A.B., Antioch College; M.A., Claremont Graduate School; Ph.D., State University of Iowa.
- BRUDERER, CONRAD (1963).....Associate Professor of Music
B.M., Oberlin Conservatory; M.M., D.M., Indiana University.
- BRUNSON, THEODORE R. (1966).....Associate Professor of Music
B.Sc., University of Minnesota; M.M., University of Nebraska; D.M.A., University of Arizona.
- BRYANT, STEVEN J. (1964).....Associate Professor of Mathematics
B.A., University of Chicago; M.A., University of North Carolina; Ph.D., University of Missouri.
- †BRYDEGAARD, MARGUERITE A. (Mrs. H.) (1936).....Professor of Elementary Education
A.B., San Diego State College; M.A., Ph.D., Claremont Graduate School.
- BYRSON, JEFF B. (1970).....Assistant Professor of Psychology
B.A., University of Texas; M.S., Ph.D., Purdue University.
- BUCK, ROBERT E. (1969).....Assistant Professor of Sociology
B.S., M.S., Trinity University; Ph.D., University of Texas.
- BUCKALEW, JAMES K. (1967).....Associate Professor of Journalism
A.B., M.A., Indiana State College; Ph.D., University of Iowa.
- BURDICK, DAVID L. (1968).....Assistant Professor of Mathematics
A.B., University of California; M.A., Ph.D., University of New Mexico.
- BURGESS, WILLIAM C. (1961).....Professor of Health Science and Safety
B.A., M.A., University of North Carolina; Ed.D., Teachers College, Columbia University.
- BURIAN, ROBERT J. (1968).....Associate Professor of Counselor Education
B.A., M.A., University of Arizona; Ed.D., Arizona State University.
- BURNSIDE, HOUSTON M. (1968).....Assistant Professor of Elementary Education
B.S., Kent State University; M.A., Ph.D., Claremont Graduate School.
- BURTON, CHARLES R. (1959).....Professor of Mathematics
B.A., M.A., University of Kansas; M.A., Ph.D., University of California.
- BURTON, JOHN W. (1968).....Assistant Professor of Spanish, Imperial Valley
B.A., University of Utah; M.A., University of Mexico; additional graduate study, Brigham Young University.
- BUSH, DOUGLAS P. (1968).....Associate Director of Libraries, Reader Services
B.S., Brigham Young University; M.L.S., University of Washington.
- BUTLER, GERALD J. (1968).....Assistant Professor of English
A.B., University of California; M.A., Ph.D., University of Washington.
- BUTLER, RAY R. (1967).....Associate Professor of Recreation
B.A., M.Ed., University of Minnesota.
- BYRNE, GARY C. (1969).....Assistant Professor of Political Science
B.A., University of Redlands; Ph.D., University of North Carolina.
- CAMPBELL, L. BERYL (1947).....Associate Professor of Elementary Education
A.B., University of California; M.A., Teachers College, Columbia University.
- †CANNON, NONA H. (Mrs. R. C.) (1959).....Professor of Home Economics
B.S., Harding College; M.S., University of California; Ed.D., Teachers College, Columbia University.
- CAPP, MARTIN P. (1953).....Dean, School of Engineering; Professor of Civil Engineering
B.S., M.S., University of Colorado. Registered Professional Engineer and Land Surveyor.
- CARELLA, MICHAEL J. (1967).....Assistant Professor of Philosophy
B.A., St. Patrick's College, California; M.A., St. Louis University; Ph.L., Ph.D., University of Louvain, Belgium.
- CARMICHAEL, NANCY M. (1968).....Assistant Professor of Botany
B.A., Barnard College, Columbia University; M.A., Ph.D., Columbia University.

*On leave, fall 1970-71.

†On leave, year 1970-71.

- †CARNEVALE, JAMES P. (1967).....Assistant Professor of Counselor Education
B.A., University of California, Los Angeles; M.A., San Diego State College; Ph.D., University
of Southern California.
- CARPENTER, ROGER E. (1963).....Professor of Zoology
B.A., University of Arizona; Ph.D., University of California, Los Angeles.
- CARRIER, WARREN P. (1969).....Dean, College of Arts and Letters;
Professor of English
B.A., Miami University, Ohio; M.A., Harvard University; Ph.D., Occidental College.
- CARTER, J. E. LINDSAY (1962).....Professor of Physical Education
Diploma in Physical Education, University of Otago, New Zealand; Teaching Certificate,
Auckland Teachers College, New Zealand; M.A., Ph.D., State University of Iowa.
- CASE, THOMAS E. (1961).....Professor of Spanish
B.A., St. Thomas College; M.A., Ph.D., State University of Iowa.
- CATLETT, ROBERT H. (1964).....Assistant Professor of Zoology
A.B., M.A., Colorado College; Ph.D., University of California, Davis.
- CATON, WILLIAM M. (1969).....Assistant Professor of Electrical and Electronic Engineering
B.Sc., M.Sc., Queen's University, Canada; Ph.D., University of California.
- CAVE, MARY F. (1946).....Associate Professor of Physical Education
B.S., University of North Dakota; M.A., San Diego State College.
- CHADWICK, LEONARD E. (1949).....Associate Professor of Economics
B.S. and additional graduate study at the University of California.
- CHAMLEY, JOHN D. (1969).....Assistant Professor of Counselor Education
B.A., Pacific Lutheran University; M.A., Ed.D., Arizona State University.
- CHAN, LILLIAN L. (Mrs. S. Y.) (1969).....Reference Librarian
B.S., M.A.L.S., University of Michigan.
- CHAN, SHU-YUN (1965).....Associate Professor of Electrical and Electronic Engineering
B.S., Susquehanna University; B.S.E.E., Columbia University; M.S.E.E., Ph.D., University of
Michigan.
- CHANDLER, SHELLY E. (Mrs. D.) (1966).....Associate Professor of Sociology
B.A., M.A., Ph.D., University of California, Los Angeles.
- CHANG, HAI-YAIN (1967).....Associate Professor of Aerospace Engineering
B.S., Cheng Kung University, China; M.S., Ph.D., Colorado State University.
- CHAPMAN, JAMES L. (1959, except 1961-63).....Professor of Business Law
B.S., J.D., Northwestern University.
- CHARLES, CAROL M. (1961).....Professor of Elementary Education
B.A., M.A., Eastern New Mexico University; Ph.D., University of New Mexico.
- CHATER, ELIZABETH E. (Mrs. M) (1964).....Assistant Professor of English
B.A., University of British Columbia; M.A., San Diego State College.
- †CHEEK, WILLIAM F. (1968).....Associate Professor of History
B.A., Hampden-Sydney College; M.A., University of Richmond; Ph.D., University of Virginia.
- CHEN, LO-CHAI (1969).....Assistant Professor of Zoology
B.S., National Taiwan University; M.S., University of Alaska; Ph.D., University of California,
San Diego.
- CHILDRESS, WILLIAM A. (1968).....Assistant Professor of Art
B.A., Florida State University; M.F.A., University of California, Los Angeles.
- CHOU, FANG-HUI (1969).....Assistant Professor of Civil Engineering
B.S., National Taiwan University; M.S., University of Minnesota; Ph.D., Northwestern Uni-
versity.
- †CHRISTENSEN, CLAY B. (1968).....Assistant Professor of Spanish
B.A., M.A., Brigham Young University; Ph.D., University of Washington.
- CHU, PAOCHIN (1967).....Assistant Professor of History
B.A., National Taiwan University, Taiwan; M.A., Ph.D., University of Pennsylvania.
- CHRYSLER, EARL (1970).....Assistant Professor of Information Systems
B.S., M.S., San Diego State College.
- CLAPP, JAMES A. (1968).....Assistant Professor of Public Administration and Urban Studies
B.S., LeMoyne College; M.R.P., D.S.S., Syracuse University.
- CLARK, MARGARET A. (1966).....Associate Professor of Elementary Education
B.A., Whittier College; M.A., Ed.D., Teachers College, Columbia University.
- CLARK, MARY E. (Mrs. R. B.) (1969).....Associate Professor of Biology
A.B., M.A., Ph.D., University of California.
- CLARK, ORRIN H. (1960).....Professor of Physics
A.B., Columbia College; M.A., Columbia University; Ph.D., New York University.
- CLARY, VIRGINIA L. (1970) (Under contract 1967-70).....Assistant Professor of Social Work
B.A., Municipal University of Omaha; M.S.W., University of Chicago.
- CLEMENT, NORRIS C. (1968).....Associate Professor of Economics
B.A., Sacramento State College; Ph.D., University of Colorado.
- CLINGER, LAWRENCE A. (1969).....Assistant Building Coordinator
B.S., San Diego State College.

†On leave, year 1970-71.

- CLOSSON, FREDERICK I. (1970).....Assistant Professor of Public Administration and Urban Studies
A.B., College of the Pacific; M.A., San Diego State College.
- COAKLEY, RUTH M. (1961).....Professor of Nursing
B.S., Hunter College, City University of New York; A.M., Teachers College, Columbia University.
- COCHRAN, ALICE J. (Mrs. H.) (1965).....Assistant Professor of Counselor Education
B.A., Ball State Teachers College; M.A., State College of Iowa; additional graduate study, University of Minnesota.
- COFFEY, DEWITT, JR. (1968).....Assistant Professor of Chemistry
B.S., Abilene Christian College; B.S., Ph.D., University of Texas.
- COHEN, LESTER M. (1970) (Under contract 1969-70).....Assistant Professor of Social Work
B.S., University of Wisconsin; M.S.W., University of Pennsylvania.
- †COHN, THEODORE J. (1964).....Associate Professor of Zoology
B.S., Cornell University; M.S., Ph.D., University of Michigan.
- COLLICA, STEPHEN (1966).....Assistant Professor of Elementary Education
B.S., State University of New York, College at Oneonta; M.A., Teachers College, Columbia University.
- COLLIER, BOYD D. (1966).....Associate Professor of Biology
B.A., University of California; M.S.T., Ph.D., Cornell University.
- COLLIER, GERALD (1961).....Associate Professor of Zoology
B.A., M.A., Ph.D., University of California, Los Angeles.
- COLLINS, ROBERT N. (1970).....Assistant Professor of Health, Science and Safety
B.A., Whitman College; M.S., Ed.D., University of Oregon.
- COLOMBO, ALBERT A. (1967).....Assistant Professor of Geography
B.S., California State College at Long Beach; M.A., San Diego State College.
- CONLY, JOHN F. (1962).....Professor of Aerospace Engineering
B.S.M.E., M.S.M.E., University of Pennsylvania; Ph.D., Columbia University.
- CONNIFF, JAMES J. (1968).....Assistant Professor of Political Science
B.A., M.A., Rutgers University; additional graduate study, Columbia University.
- CONWAY, ALICE E. (Mrs. J. C.) (1969).....Instructor in Nursing
B.S.N., Syracuse University; M.N., University of Pittsburgh.
- COOX, ALVIN D. (1964).....Professor of History
B.A., New York University; M.A., Ph.D., Harvard University.
- †CORSO, ANTHONY W. (1968).....Lecturer in Public Administration and Urban Studies
B.S., Marquette University; M.C.R.P., University of Wisconsin.
- CORELL, DONALD D. (1961).....Professor of Physical Education
B.A., M.S., University of Washington.
- COTTRELL, ANN W. (Mrs. D.) (1967).....Assistant Professor of Sociology
B.A., Miami University, Ohio; M.A., Ph.D., Michigan State University.
- COTTRELL, DON M. (1967).....Associate Professor of Physics
B.S., Ph.D., University of Washington.
- COULOMBE, HARRY N. (1969).....Assistant Professor of Biology
B.A., M.A., Ph.D., University of California, Los Angeles.
- COVENY, CECELIA T. (1957).....Professor of Nursing
B.S., University of Minnesota; M.P.H., University of North Carolina.
- COVER, CLARENCE B. (1959).....Facilities Planning Assistant
B.S., M.A., Ohio State University.
- COVINGTON, DON P. (1965).....Associate Professor of Art
B.A., Southern Methodist University; M.A., University of California, Los Angeles.
- COX, GEORGE W. (1962).....Professor of Biology
B.A., Ohio Wesleyan University; M.S., Ph.D., University of Illinois.
- COX, THOMAS R. (1967).....Associate Professor of History
B.S., Oregon State College; M.S., Ph.D., University of Oregon.
- CRAIG, GEORGE T. (1968).....Associate Professor of Mechanical Engineering
B.S., Pennsylvania State University; M.S., Ph.D., Louisiana State University.
- CRAIG, ROBERT L. (1960).....Assistant Professor of Physics
A.B., Doane College; M.S., University of Nebraska; additional graduate study at Universities of Minnesota and Idaho.
- CRAIN, MELVIN (1959).....Associate Professor of Political Science
A.B., University of Redlands; M.A., Ph.D., University of Southern California.
- *CRANE, NATHALIA (1958).....Assistant Professor of English
Special study at Barnard College, University of Madrid, and Sorbonne.
- CRAWFORD, JAMES (1968).....Physician
B.S., M.D., University of Indiana.
- CRAWFORD, MAURICE L. (1954).....Professor of Information Systems
B.S., M.S., University of Utah; Ed.D., University of California, Los Angeles.
- CRAWFORD, PATRICIA A. (1961).....Associate Professor of Philosophy
B.A., M.A., University of Rochester; Ph.D., University of Minnesota.

†On leave, year 1970-71.

*On leave, fall, 1970-71.

- CRAWFORD, RONALD W. (1953).....Professor of Zoology
A.B., San Diego State College; Ph.D., Cornell University.
- CRISLEY, CORNELIUS J. (1962).....Reference Librarian
A.B., University of Pittsburgh; M.L.S., Carnegie Institute of Technology.
- CROOKER, ANDREW J. (1968).....Assistant Professor of Aerospace Engineering
B.S., University of New Hampshire; M.S., Ph.D., University of Illinois.
- CROSS, CHRISTA M. (Mrs. R. K.) (1969).....Assistant Professor of German
B.A., M.A., additional graduate study, University of California, Los Angeles.
- †CROUCH, JAMES ENSIGN (1932).....Professor of Zoology
B.S., Cornell University; Ph.D., University of Southern California.
- †CROUSE, GALE K. (1967).....Instructor in French
B.S., Eastern Illinois University; M.A., University of Wisconsin.
- CRUM, CLYDE E. (1955).....Professor of Secondary Education
B.S., M.S., Kansas State Teachers College; Ed.D., University of Colorado.
- CULLEN, F. PATRICIA (1964).....Associate Professor of Physical Education
B.S., Illinois State University; M.A., State University of Iowa; Ph.D., University of Illinois.
- CUMMINS, EMERY J. (1966).....Associate Professor of Counselor Education
B.A., Wheaton College; M.S., University of Southern California; Ph.D., Michigan State University.
- CUNNIFF, ROGER L. (1967).....Assistant Professor of History
B.A., M.A., Colorado State College; Ph.D., University of Texas.
- CUTTER, CHARLES H. (1968).....Assistant Professor of Political Science
A.B., M.A., University of California; doctoral candidate, University of California, Los Angeles.
- DANIELS, MORRIS J. (1956).....Professor of Sociology
B.A., Southern Methodist University; M.A., Ph.D., University of Texas.
- DARLEY, RICHARD D. (1961).....Professor of Marketing
B.S., Cornell University; M.S., University of Missouri; Ph.D., Purdue University.
- DAUB, CLARENCE T., JR. (1967).....Associate Professor of Astronomy
B.A., Carleton College; Ph.D., University of Wisconsin.
- DAUGHERTY, WAYNE F., JR. (1966).....Associate Professor of Biology
B.A., Long Beach State College; Ph.D., Johns Hopkins University.
- DAVIES, THOMAS M., JR. (1968).....Assistant Professor of History
B.A., M.A., University of Nebraska; Ph.D., University of New Mexico.
- DAVIS, CRAIG H. (1967).....Assistant Professor of Biology
B.S., Oregon State University; M.S., Ph.D., University of Washington.
- DAVIS, GLOVER T., II (1966).....Assistant Professor of English
B.A., Fresno State College; M.F.A., State University of Iowa.
- DAVIS, RICHARD L. (1969).....Lecturer in Physical Education
B.S., M.S., University of California, Los Angeles.
- DAVIS, RONALD W. (1968).....Associate Professor of Mathematics
B.A., Ph.D., University of Colorado.
- *DEATON, EDMUND I. (1960).....Professor of Mathematics
B.A., Hardin-Simmons University; M.A., Ph.D., University of Texas.
- DEE, JOHN J., JR. (1970).....Assistant Professor of Finance
B.S., Purdue University; M.B.A., D.B.A. candidate, Indiana University.
- DEFERAN, RICHARD H. (1970).....Assistant Professor of Psychology
A.B., Loyola University; M.A., Ph.D. candidate, Bowling Green State University.
- DeLORA, JACK R. (1955).....Professor of Sociology
B.S., Bowling Green State University; M.A., Western Reserve University; Ph.D., Michigan State University.
- DeLORA, JOANN H. (Mrs. J.) (1967).....Assistant Professor of Sociology
B.A., M.A., Ph.D., University of Texas.
- DeMARINIS, FREDERICK M. (1969).....Lecturer in English
B.A., M.A., University of Montana
- DESSEL, NORMAN F. (1961).....Professor of Physical Science
B.A., M.A., Ph.D., State University of Iowa.
- DETWEILER, ROBERT C. (1968).....Assistant Professor of History
B.A., Humboldt State College; M.A., San Francisco State College; Ph.D., University of Washington.
- †DEXTER, DEBORAH M. (1967).....Associate Professor of Zoology
B.A., M.A., Stanford University; Ph.D., University of North Carolina.
- DHARMARAJAN, SANGIAH (1960).....Professor of Aerospace Engineering
B.Eng., College of Engineering, Madras, India; M.S., Ph.D., University of Illinois.
- *DICKEN, CHARLES F. (1962).....Professor of Psychology
B.A., M.A., Ph.D., University of Minnesota.
- DICKERSON, MARY E. (1967).....Assistant Professor of Home Economics
B.S., M.S., Kansas State University.

† On leave, year 1970-71.

* On leave, fall 1970-71.

† On leave, spring 1970-71.

- †DICKINSON, FIDELIA R. (Mrs. J. W.) (1966).....Assistant Humanities Reference Librarian
B.A., M.A., Immaculate Heart College; Ph.D., University of California, Los Angeles.
- DICKINSON, JOHN W. (1962).....Professor of English
A.B., University of California, Santa Barbara; A.M., Ph.D., University of California, Los Angeles.
- DIEHL, WILLIAM P. (1968).....Assistant Professor of Biology
B.S., University of Arizona; Ph.D., University of California, Los Angeles.
- DILL, ROBERT S., JR. (1970).....Assistant Professor of History
B.A., Kent State University; M.A., Ph.D. candidate, University of Michigan.
- DIMMICK, KENNETH D. (1970).....Assistant Professor of Speech Pathology and Audiology
B.A., Northwestern State College; Ph.D., Stanford University.
- DIRKS, JOHN H. (1947).....Professor of Art
A.B., San Diego State College; M.F.A., Claremont Graduate School.
- DIRKSEN, DENNIS A. (1969).....Assistant Professor of Industrial Arts
B.A., McPherson College; M.S., Kansas State Teachers College; Ed.D., Utah State University.
- DODDS, LOWELL J. (1957).....Associate Professor of Accounting
A.B., University of Redlands; M.B.A., University of Denver. Certified Public Accountant.
- DONAHUE, THOMAS S. (1968).....Assistant Professor of English
B.A., Denison University; M.A., Miami University, Ohio; Ph.D., Ohio State University.
- DOORLAG, DONALD H. (1970).....Assistant Professor of Special Education
B.S., Central Michigan University; M.A., Ph.D., Michigan State University.
- DORRIS, HELEN L. (1952).....Professor of Home Economics
B.S., Southern Illinois University; M.S. and additional graduate study, University of Illinois.
- DOWHOWER, RODNEY D. (1970).....Lecturer in Athletics
A.B., San Diego State College; M.A. candidate, United States International University.
- DOWNEN, ROBERT E. (1965).....Admissions Officer
B.S., United States Naval Academy.
- DRAKE, CHARLES A. (1970).....Assistant Professor of Sociology
B.S., Brigham Young University; M.A., University of Maine; Ph.D., Michigan State University.
- DRAKE, GLENDON F. (1966).....Assistant Professor of English
A.B., Miami University, Ohio; M.A., Oklahoma State University; additional graduate study, Michigan State University and University of Michigan.
- DROBNIES, SAUL I. (1963).....Professor of Mathematics
B.S., M.A., Ph.D., University of Texas; Post-Doctoral Fellow, Rice University.
- DUCKWORTH, JOSEPH B. (1968).....Assistant Professor of Secondary Education
B.A., Oglethorpe College; M.A.T., Oberlin College; Ed.D., Wayne State University.
- DUFFAULT, DAVID V. (1962).....Assistant Professor of History
B.A., M.A., Occidental College; additional graduate study, University of Oregon.
- DUKAS, VYTAS (1959).....Professor of Russian
A.B., M.A. (Russian), M.A. (German), Ph.D., University of Michigan.
- DULING, JOHN L. (1970).....Assistant Professor of Education, Imperial Valley
B.S., B.A., Morningside College; M.A., Iowa State University; Ed.D., University of California.
- DUNHOUSE, WILLIAM B. (1968).....Assistant Professor of French
B.A., University of Illinois; M.A., Middlebury College; Ph.D. candidate, University of Wisconsin.
- DUNKLE, HARVEY I. (1963).....Associate Professor of German
A.B., New York University; M.A., Ph.D., University of California.
- DUNN, ROSS E. (1968).....Assistant Professor of History
B.A., State University of New York at Albany; M.A., Ph.D., University of Wisconsin.
- EAGLE, JOHN E. (1946).....Professor of Mathematics
B.S., Montana State College; M.A., Ed.D., Stanford University.
- EARNEST, SUE W. (Mrs. L. E.) (1947).....Professor of Speech Pathology and Audiology
B.A., San Diego State College; M.A., Ph.D., University of Southern California.
- EBERT, THOMAS A. (1969).....Assistant Professor of Biology
B.S., University of Wisconsin; M.S., Ph.D., University of Oregon.
- ECKBERG, CARL F. (1969).....Assistant Professor of Mathematics
B.A., Cornell University; M.S., Ph.D., Purdue University.
- EDGEON, ALBERT W. (1970).....Assistant Professor of Elementary Education
B.A.E., University of Florida; M.A., Ed.D., Teachers College, Columbia University.
- EGGLESTON, DAVID M. (1970).....Associate Professor of Aerospace Engineering
B.S., M.S., Ph.D., University of California.
- EIDEMILLER, DONALD I. (1956).....Professor of Geography
A.B., San Diego State College; M.A., University of California; Ph.D., Indiana University.
- EISNER, ROBERT E. (1970).....Assistant Professor of Classics
B.A., St. Peter's College; M.A., Ph.D. candidate, Stanford University.
- EL-ASSAL, MOHAMED M. E. (1967).....Associate Professor of Sociology
M.S., M.A., Ph.D., Indiana University.

- ELLIOTT, ELAINE Z. (Mrs.) (1967).....Assistant Education Resource Center Librarian
A.B., University of California, Los Angeles; M.L.S., University of California.
- ELLIOTT, ROSALIE C. (1968).....Associate Professor of Elementary Education
B.A., Mount Holyoke College; M.A., Bryn Mawr College; Ph.D., Claremont Graduate School.
- ELWIN, JOHN D. (1969).....Assistant Professor of Mathematics
B.S., University of Washington; Ph.D., Oregon State University.
- EMERICK, ROBERT E. (1968).....Assistant Professor of Sociology
B.A., University of California, Santa Barbara; Ph.D. candidate, Northwestern University.
- ERICKSON, PAUL (1963).....Professor of Secondary Education
B.A., Arizona State University; M.A., Stanford University; Ed.D., University of Southern California.
- ERIKSON, GLENN C. (1970).....Lecturer in Public Administration and Urban Studies
B.S., M.S., Illinois Institute of Technology.
- ERNST, DAVID G. (1970).....Lecturer in Music
B.S., Duquesne University; M.A., Rutgers University.
- ESTES, RUSSELL G. (1963).....Associate Professor of Music
B.M.E., M.M.E., Millikin University, Illinois; Ed.D., Colorado State College.
- ETHERIDGE, RICHARD E. (1961).....Professor of Zoology
B.S., Tulane University; M.S., Ph.D., University of Michigan.
- EZELL, PAUL H. (1956).....Professor of Anthropology
B.A., M.A., Ph.D., University of Arizona.
- FABO, CSILLA V. (Mrs. Z.) (1970).....Assistant Professor of Art
Ph.D., University of Hungary.
- FAHY, WILLIAM L. (1966).....Instructor in English
A.B., St. Joseph's College, Pa.; M.A., San Diego State College.
- FARBER, GERALD H. (1968).....Lecturer in English
B.A., University of California, Los Angeles; M.A., California State College, Los Angeles; Ph.D., Occidental College.
- FARRIS, DAVID A. (1960).....Professor of Biology
A.B., Indiana University; Ph.D., Stanford University.
- FEARN, LEIF (1967).....Associate Professor of Elementary Education
B.S., Shippensburg State College, Pa.; M.A., Ed.D., Arizona State University.
- FEENBERG, ANDREW L. (1969).....Assistant Professor of Philosophy
B.A., Johns Hopkins University; M.A., Ph.D. candidate, University of California, San Diego.
- FEIERABEND, IVO K. (1959).....Professor of Political Science
B.A., M.A., University of California; Ph.D., Yale University.
- FEIERABEND, ROSALIND A. (Mrs. I.) (1964).....Professor of Psychology
B.A., Swarthmore College; M.A., University of California; Ph.D., Yale University.
- FELLERS, STANFORD (1966).....Associate Professor of Health Science and Safety
A.B., Adams State College; M.A., Colorado State College; Ed.D., Boston University.
- FERREE, RICHARD J. (1969).....Lecturer in Industrial Arts
A.B., graduate study, San Diego State College.
- FERREL, DALE B. (1957).....Professor of Accounting
B.S., M.B.A., University of Denver. Certified Public Accountant.
- FETZER, LELAND A. (1966).....Assistant Professor of Russian
B.S., University of Utah; M.L.S., M.A., Ph.D., University of California.
- FILNER, ROBERT E. (1970).....Assistant Professor of History
B.A., Cornell University; M.A., University of Delaware; Ph.D. candidate, Cornell University.
- FINCH, WILLIAM A., JR. (1961).....Professor of Geography
B.A., East Carolina College; M.A., University of Oklahoma; Ph.D., University of Illinois.
- FINKE, WARREN L. (1968).....Lecturer in Biology
B.A., University of Iowa; graduate study at Basel University, Switzerland, and Oxford University.
- FIROVED, JAMES (1970).....Physician
B.S., Monmouth College; M.D., Northwestern University.
- † FISCH, ARLINE M. (1961).....Professor of Art
B.S., Skidmore College; M.A., University of Illinois.
- FISHBURN, CLARENCE E. (1955).....Professor of Secondary Education
A.B., Arizona State College, Tempe; M.A., Arizona State College, Flagstaff; Ed.D., Stanford University.
- FISHER, HORACE H. (1966).....Associate Professor of Finance
A.B., University of Utah; M.A., Ph.D., University of Southern California.
- FISHER, J. SHERRICK (1953).....Professor of Elementary Education
B.S., Bethany College; M.A., Teachers College, Columbia University; Ph.D., University of Pittsburgh.
- FISHER, ROBERT T. (1966).....Assistant Professor of Business Law
B.S., M.Ed., Wayne State University; Ed.D., Michigan State University; J.D., Wayne State University.
- FITZ, RICHARD A. (1959).....Professor of Mechanical Engineering
B.S., Baldwin-Wallace College; M.S. (Ch.E.), Ph.D., Ohio State University.

† On leave, year 1970-71.

- FLAGG, DENIS A. (1955).....Professor of Economics
B.A., Harvard College; Ph.D., University of California.
- FLAGG, JOAN M. (Mrs. J. E.) (1969).....Assistant Professor of Nursing
B.S.N., State University of Iowa; M.S., University of California, San Francisco.
- FLEMION, JESSIE L. STODDART (Mrs. P. F.) (1966).....Assistant Professor of History
B.A., Carroll College; M.A., University of Nebraska; Ph.D., University of California.
- FLEMION, PHILIP F. (1968).....Assistant Professor of History
B.A., B.S., M.A., Ohio State University; Ph.D., University of Florida.
- FLETCHER, WILLIAM, III (1970).....Assistant Professor of Social Work
B.A., Brown University; M.A., Tulane University.
- FLITTNER, GLENN A. (1970).....Professor of Biology
A.B., M.A., University of California; Ph.D., University of Michigan.
- FLYE, RICHARD C. (1950).....Assistant Professor of Music
B.A., University of Virginia; M.A. and Professional Diploma, Columbia University.
- FORBING, SHIRLEY E. (Mrs.) (1969).....Assistant Professor of Special Education
A.B., M.A., San Diego State College; Ed.D., University of Southern California.
- FORD, DAVID, H. (1967).....Associate Professor of Elementary Education
B.A., M.Ed., University of Arizona; D.Ed., University of Oregon.
- FORD, LAWRENCE R. (1970).....Assistant Professor of Geography
B.Sc., M.A., Ohio State University; Ph.D., University of Oregon.
- FORD, RICHARD F. (1964).....Associate Professor of Biology
B.A., Pomona College; M.A., Stanford University; Ph.D., University of California, San Diego.
- FORMAN, ROBERT B. (1963).....Associate Professor of Music
B.M.E., University of Kansas; M.A., Teachers College, Columbia University; Ed.D., Florida State University.
- FORNOFF, FREDERICK H. (1967).....Assistant Professor of Spanish
B.A., University of New Mexico; M.A., doctoral candidate, University of North Carolina.
- FORREY, ROBERT J. (1968).....Assistant Professor of English
B.A., M.A., Wesleyan University; Ph.D. candidate, Yale University.
- FORT, MARTHA (Mrs.) (1968).....Assistant Professor of Social Work
A.B., Oberlin College; M.S.W., University of Pittsburgh.
- FOUNTAIN, LEONARD D. (1960).....Professor of Mathematics
A.B., S.M., University of Chicago; Ph.D., University of Nebraska.
- FOX, KATHLEEN (1962).....Associate Professor of Physical Education
B.S., Kansas State Teachers College; M.A., State University of Iowa; Ph.D., University of Southern California.
- FRANKLIN, ROBERT J. (1967).....Assistant Professor of History, Imperial Valley
B.A., Greenville College; M.A., University of Michigan; additional graduate study, California State College at Los Angeles and University of Southern California.
- FRANZ, EDWARD P. (1965).....Assistant Professor of Physical Education
B.S., M.A., Washington University.
- FRANZINI, LOUIS R. (1969).....Assistant Professor of Psychology
B.S., University of Pittsburgh; M.A., University of Toledo; Ph.D., University of Pittsburgh.
- FREDERIKSEN, NORMAN O. (1969).....Assistant Professor of Geology
B.A., Hamilton College; M.S., Pennsylvania State University; Ph.D., University of Wisconsin.
- FRENCH, HAROLD S., Major, USAF (1969).....Assistant Professor of Aerospace Studies
B.S., University of Missouri; M.B.A., University of Alabama.
- FREIDELL, THEODORE D. (1969).....American Council on Education Intern
B.A., M.A., University of Kansas City; Ph.D., University of Missouri at Kansas City.
- FREY, LEONARD H. (1956).....Professor of English
A.B., Dartmouth College; M.A., Ph.D., University of Oregon.
- FRICK, FAY A. (Mrs.) (1970).....Assistant Professor of Art
B.A., University of Chicago; M.A., University of Wisconsin; Ph.D., University of Michigan.
- FRIEDMAN, ABRAHAM M. (1963).....Assistant Professor of Physical Education
B.S., Springfield College, Massachusetts; graduate study, Columbia University, School of Social Work; M.A., San Diego State College; Ph.D., United States International University.
- FRIEDRICH, KURT (1949).....Professor of Secondary Education
A.B., Columbia College; M.A., Columbia University; Ed.D., Teachers College, Columbia University.
- FUKAMIZU, RAYMOND H. (1969).....Assistant Professor of Industrial Arts
A.B., M.A., San Diego State College; additional graduate study, University of California, Los Angeles.
- FULKERSON, E. GLEN (1954).....Director of Audio-Visual Services;
Professor of Education
B.E., Southern Illinois University; M.A., Ed.D., University of California, Los Angeles.
- FUNSTON, RICHARD Y. (1970).....Assistant Professor of Political Science
A.B., M.A., Ph.D., University of California, Los Angeles.
- FUTCH, DAVID G. (1967).....Assistant Professor of Biology
B.A., University of North Carolina; M.A., Ph.D., University of Texas.
- GALBRAITH, OLIVER, III (1955).....Associate Professor of Management
B.S., M.B.A., Northwestern University; Ph.D., University of California, Los Angeles.

- GALLO, PHILIP S., JR. (1963).....Professor of Psychology
B.A., M.A., University of California, Santa Barbara; Ph.D., University of California, Los Angeles.
- GALLUP, AVERY H. (1952).....Professor of Botany
A.B., San Diego State College; M.A., Claremont Graduate School; Ph.D., University of Michigan.
- GANGE, SAMUEL J. (1969).....Counselor
B.A., Pacific Lutheran University; M.A., Ed.D., University of Wyoming.
- GARCIA, RICHARD A. (1970).....Assistant Professor of Mexican-American Studies
B.A., M.A. (Education), M.A. (Political Science), University of Texas.
- GARRISON, BETTY B. (Mrs. J.) (1962).....Professor of Mathematics
B.S., B.A., Bowling Green State University; M.A., Ohio State University; Ph.D., Oregon State University.
- GARRISON, JOHN D. (1956).....Professor of Physics
B.A., M.A., University of California, Los Angeles; Ph.D., University of California.
- GAST, DAVID K. (1963).....Associate Professor of Elementary Education
B.A., Occidental College; M.A., Arizona State College, Flagstaff; Ed.D., Arizona State University.
- GASTIL, R. GORDON (1959).....Professor of Geology
A.B., Ph.D., University of California.
- GATES, GERALD F. (1955).....Professor of Elementary Education
B.F.A., Syracuse University; M.F.A., University of Colorado; M.A., Ed.D., University of Denver.
- GAZELL, JAMES A. (1968).....Assistant Professor of Public Administration and Urban Studies
B.A., M.A., Roosevelt University; Ph.D., Southern Illinois University.
- GEFTER, IRVING (1970).....Lecturer in Hebrew
B.A., University of Toronto; M.A., Michigan State University; additional graduate study, Brandeis University.
- GEHA, PETER C. (1955).....Professor of Elementary Education
A.B., M.S., Ed.D., University of Southern California.
- GELFAND, CAROL E. (Mrs. D.) (1967).....Assistant Professor of Social Work
A.B., Stanford University; M.A., Southern Methodist University.
- GELLENS, JAY H. (1961).....Professor of English
B.A., Kenyon College; M.A., Ph.D., Yale University.
- GENERALES, MINOS D. (1949).....Professor of Political Science
Degree in Law and Political Science, University of Athens; additional graduate study at the University of Paris Law School and Institute of International Studies, Paris and Geneva.
- GENOVESE, EDGAR N. (1970).....Assistant Professor of Classics
A.B., Xavier University; Ph.D., Ohio State University.
- GENZLINGER, CLEVE K. (1957).....Professor of Music
B.M., M.M., University of Nebraska; additional graduate study, Teachers College, Columbia University.
- GERVAIS, RONALD J. (1969).....Assistant Professor of English
B.A., M.A., Michigan State University; Ph.D., University of Oregon.
- GILBERT, JEANNE S. (Mrs. H.) (1965).....Assistant Professor of French
B.A., B.Ed., University of Puget Sound; M.A., and additional graduate study, University of Washington.
- GHORPADE, JAISINGH V. (1965).....Associate Professor of Management
B.A., University of Poona, India; M.B.A., Ph.D., University of California, Los Angeles.
- GIBSON, E. DANA (1947).....Professor of Information Systems
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- GIFFORD, ADAM (1954).....Professor of Economics
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- GILBERT, CLAUDE L. (1967).....Assistant Professor of Physical Education
B.A., M.A., San Jose State College.
- GILBERT, MARGARET L. (Mrs. A. V.) (1958).....Administrative Analyst
A.B., San Diego State College.
- GILBREATH, STUART H. (1968).....Associate Professor of Psychology
B.A., Pacific Lutheran College; B.D., Pacific Lutheran Theological Seminary; Ph.D., Michigan State University.
- GILLETTE, THOMAS L. (1961).....Professor of Sociology
A.B., University of Missouri; M.A., University of Kansas City; Ph.D., University of North Carolina.
- GILLIAM WINONA H. (Mrs. G. T.) (1970).....Assistant Professor of Social Work
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- GITCHOFF, G. THOMAS (1969).....Assistant Professor of Public Administration and Urban Studies
B.A., Central Methodist College; M.Crim., D.Crim., University of California.

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- GLASGOW, JANIS M. (1962).....Associate Professor of French
B.A., Western Reserve University; M.A., University of Wisconsin; Ph.D., University of
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- GLENN, RICHARD D. (1970).....Lecturer in Zoology
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- GOLDKIND, VICTOR (1961).....Professor of Anthropology
B.S., George Washington University; M.A., Ph.D., Michigan State University.
- †GOODRICH, MARGRIT (Mrs. M.) (1966).....Assistant Professor of Nursing
B.S., M.A., New York University.
- GOODSON, ROGER A. (1968).....Associate Professor of Elementary Education
B.S., University of Virginia; M.A., Ed.D., Teachers College, Columbia University.
- GOVERNALI, PAUL (1956).....Professor of Physical Education
B.A., Columbia College; M.A., Ed.D., Teachers College, Columbia University.
- GOWING, ROBERT P. (1969).....Assistant Professor of Management
A.B., Princeton University; M.B.A., Xavier University; D.B.A. candidate, Arizona State Uni-
versity.
- GOYNE, CAROL L. (1969).....Assistant Serials Librarian
A.B., San Diego State College; M.S.L.S., University of Southern California.
- GRAF, RICHARD G. (1968).....Assistant Professor of Psychology
B.A., Fairleigh Dickinson University; M.A., Connecticut College; Ph.D., University of
Massachusetts.
- GRAHAM, JACK A. (1967).....Counselor
B.A., Central Washington State College; M.A., Washington State University; Ed.D., Arizona
State University.
- GRANRUD, CAROLYN A. (1960).....Assistant Catalog Librarian
B.A., St. Olaf College; B.S. in L.S., University of Minnesota.
- GRANT, RICHARD H. (1968).....Assistant Professor of Health Science and Safety
B.S., M.S., University of Oregon; M.P.H., University of California; Ed.D., University of
Oregon.
- GRAVES, LAWRENCE E. (1967).....Assistant Professor of Information Systems
A.B., San Diego State College; M.A., University of North Carolina.
- GRAYWUNDER, RALPH M. (1955).....Professor of Health Science and Safety
B.S., The Rice Institute; M.A., Ed.D., Teachers College, Columbia University.
- GRAY, ROBERT T. (1956).....Professor of Secondary Education
A.B., M.Ed., Ed.D., University of Kansas.
- GREENE, JOANNE H. (1967).....Assistant Catalog Librarian
B.A., Cornell University; M.S.L.S., University of Southern California.
- GREENE, MYRON (1968).....Assistant Professor of History
A.B., A.M., University of Colorado; Ph.D. candidate, Indiana University.
- GREENFELD, PHILIP J. (1969).....Assistant Professor of Anthropology
B.A., Pasadena College; M.A., Ph.D. candidate, University of Arizona.
- GREENWOOD, NED H. (1964).....Associate Professor of Geography
B.S., M.S., Brigham Young University; Ph.D., Ohio State University.
- GRIFFIN, RONALD W. (1967).....Associate Professor of Social Work
B.A., Texas Technological College; B.D., Golden Gate Baptist Seminary; M.S.S.W., Univer-
sity of Texas; Ph.D., Florida State University.
- GRIPP, RICHARD C. (1958).....Professor of Political Science
A.B., Whittier College; A.M., Ph.D., University of Southern California.
- GROFF, PATRICK J. (1955).....Professor of Elementary Education
B.S., M.S., University of Oregon; Ed.D., University of California.
- GROOVER, DARRYL G. (1966).....Assistant Professor of Art
B.F.A., M.A., Kent State University; M.F.A., University of Arizona.
- GROSS, GEORGE C. (1961).....Professor of English
A.B., M.A., San Diego State College; Ph.D., University of Southern California.
- GROSSBERG, JOHN M. (1962).....Professor of Psychology
A.B., Brooklyn College; M.A., Ph.D., Indiana University.
- GRUBBS, EDWARD J. (1961).....Professor of Chemistry
A.B., Occidental College; Ph.D., Massachusetts Institute of Technology.
- †GUENTZLER, WILLIAM D. (1968).....Assistant Professor of Industrial Arts
B.S., M.A., Kent State University.
- GUERTNER, GARY L. (1970).....Assistant Professor of Political Science
B.A., M.A., University of Arizona; Ph.D. candidate, Claremont Graduate School.
- GUIDRY, ROSALIND (Mrs. F. X.) (1970).....Assistant Professor of Social Work
B.A., M.A., California Western University; Ph.D., United States International University.
- GUNDERSON, MAXINE M. (Mrs. E.) (1966).....Assistant Professor of Psychology
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† On leave, year 1970-71.

† On leave, spring 1970-71.

- GUNNING, BARBARA E. (1969).....Assistant Professor of Home Economics
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- GUTOWSKI, JULIUS P., JR. (1967).....Instructor in Physical Education
A.B., San Diego State College.
- †GUZZETTA, CHARLES J. (1964).....Professor of Social Work
B.S., M.S., University of the State of New York; M.S.S., University of Buffalo; Ed.D., Temple University.
- GWINUP, THOMAS R. (1968).....Reference Librarian
B.A., M.A., University of Denver; M.A., Indiana University.
- HAAK, HAROLD H. (1962).....Dean, College of Professional Studies; Professor of Public
Administration and Urban Studies
B.A., M.A., University of Wisconsin; Ph.D., Princeton University.
- HAAS, ROBERT W. (1967).....Associate Professor of Marketing
B.B.A., St. Bonaventure University; M.S., D.B.A., Arizona State University.
- HABERSTROH, JACK (1969).....Assistant Professor of Journalism
B.S., Loyola University; M.S., University of California, Los Angeles; Ph.D., University of Iowa.
- HAFFLY, MARILYN (Mrs. D. B.) (1965).....Assistant Professor of Recreation
B.A., Ohio Wesleyan University; M.A., University of North Carolina; additional graduate study, Indiana University.
- HAGER, RICHARD A. (1970).....Assistant Professor of Mathematics
B.Phys., Ph.D., University of Minnesota.
- HAINES, RICHARD B. (1969).....Scholarship Adviser
B.A., California State College, Fullerton.
- HALE, E. ALAN (1957).....Professor of Marketing
B.A., Gustavus Adolphus College; M.A., Ph.D., University of Illinois.
- HALFAKER, PHILIP (1962).....Professor of Secondary Education
B.S., M.A., Ball State Teachers College; Ed.D., Indiana University.
- HALLER, JUDITH L. (Mrs. J. L.) (1968).....Activities Adviser
B.A., University of California, Los Angeles.
- HAMBLETON, JOHN W. (1969).....Assistant Professor of Economics
B.A., Boston College; M.A., Ph.D., University of Wisconsin.
- HAMBLETON, KAYE E. (Mrs. J. W.) (1969).....Assistant Professor of Home Economics
B.S., North Dakota State University; M.S., University of Wisconsin.
- HAMILTON, RICHARD A. (1969).....Assistant Professor of Public Administration and
Urban Studies
B.S., University of Pennsylvania; M.B.A., University of Missouri; Ph.D., University of Southern California.
- HAMMER, GERALD K. (1963).....Associate Professor of Industrial Arts
B.S., M.S., Bradley University; Ed.D., University of California, Los Angeles.
- HAMPTON, DAVID R. (1964).....Professor of Management
A.B., University of Michigan; M.B.A., University of Southern California; Ph.D., Columbia University.
- HANCHETT, ELIZABETH R. (Mrs. W. F.) (1969).....Assistant Professor of French
B.A., Reed College; M.A., Wellesley College; doctorat d'Université de Paris.
- HANCHETT, WILLIAM F., JR. (1956).....Professor of History
A.B., Southern Methodist University; M.A., Ph.D., University of California.
- HANSON, CHARLES L. (1966).....Aztec Center Coordinator
B.A., University of Redlands; M.B.A., University of California, Los Angeles.
- HANSON, ROBERT F. (1962).....Professor of Recreation
B.A., M.A., Washington State University; Rec.D., Indiana University.
- HARARI, HERBERT (1966).....Associate Professor of Psychology
B.A., M.S., Ph.D., University of Miami.
- HARDER, DONALD F. (1960).....Dean of Counseling and Testing
B.S., M.S., Ed.D., University of Kansas.
- HARDESTY, JOHN J. (1968).....Assistant Professor of Economics
A.B., Stanford University; A.M., University of Chicago; Ph.D., University of California, San Diego.
- HARKANYI, KATALIN (Mrs. T.) (1969).....Assistant Catalog Librarian
B.A., Wayne State University; M.L.S., Western Michigan University.
- HARMON, JAMES E. (1964).....Assistant Professor of Political Science, Imperial Valley
A.B., M.S., San Diego State College.
- HARNED, W. WALLACE (1962).....Professor of Accounting
A.B., Asbury College; M.B.A., University of Kentucky; Ph.D., University of California, Los Angeles.
- HARPER, LEROY A. (1959).....Professor of Health Science and Safety
B.S., M.S., Emporia State Teachers College; Ed.D., Teachers College, Columbia University.
- HARRINGTON, AWONA W. (1949).....Sciences Librarian
A.B. and additional graduate study at San Diego State College; M.S. in L.S., University of Southern California.

† On leave, year 1970-71.

- HARRINGTON, NEIL J. (1948).....Professor of Chemistry
B.S., Monmouth College; M.A., San Diego State College; Ed.D., Colorado State College of Education.
- HARRIS, EVELYN J. (Mrs.) (1968).....Education Resource Center Librarian
A.B., M.Ed., University of Arizona; M.A.L.S., University of Denver.
- HARRIS, FREDERICK J. (1968).....Assistant Professor of Electrical and Electronic Engineering
B.E.E., Polytechnic Institute of Brooklyn; M.S.E.E., San Diego State College.
- HARRIS, MARCIA L. (Mrs.).....Assistant Professor of Speech Pathology and Audiology
A.B., M.A., San Diego State College; Ph.D., University of Oregon.
- HARRIS, VINCENT C. (1950).....Professor of Mathematics
B.A., M.A., Ph.D., Northwestern University.
- HARRISON, GERALDINE M. (Mrs. R.) (1969).....Assistant Catalog Librarian
A.B., Immaculata College, Pa.; M.S.L.S., Drexel Institute of Technology.
- HARRISON, PATRICK J. (1970).....Assistant Professor of Secondary Education
B.S., M.S., Stout State University; Ph.D., Michigan State University.
- HARRISON, ROBERT C. (1953).....Professor of Psychology
B.S., M.S., Ph.D., University of Washington.
- HARTIGAN, SELWYN C. (1946).....Business Manager
A.B., San Diego State College.
- HARVEY, A. R. (1949).....Professor of Mathematics
B.S., Bates College; A.M., Ph.D., Harvard University.
- HARVEY, MICHAEL L. (1969).....Assistant Professor of Drama
B.S., Harvey Mudd College; M.A., University of California, Los Angeles; Ph.D., University of Minnesota.
- HASKELL, HARRIET (1940, except 1943-45).....Professor of English
A.B., Mills College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.
- HASSE, HELMUT (1970).....Visiting Professor of Mathematics
Ph.D., University of Marburg, Germany.
- HAWLEY, PEGGY J. (Mrs. P. F.) (1968).....Associate Professor of Counselor Education
B.A., California State College, Los Angeles; M.A., University of Redlands; Ph.D., Claremont Graduate School.
- HAWORTH, GLENN O. (1966).....Associate Professor of Social Work
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- HAWORTH, JOANNE (Mrs. G. O.) (1970).....Assistant Professor of Social Work
B.S., University of Illinois; M.S.W., additional graduate study, University of California.
- HAXTON, JOHN D. (1969).....Lecturer in Art
B.A., University of South Florida; M.F.A., University of Michigan.
- *HAZEN, WILLIAM E. (1962).....Professor of Biology
B.S., St. Lawrence University; M.S., Ph.D., University of Michigan.
- HEAD, GERALD L. (1964).....Associate Professor of Spanish and Portuguese
B.A., Ph.D., University of California, Los Angeles.
- HEG, E. BIDDLE (1969).....Financial Aid Counselor
B.A., Swarthmore College; graduate study, University of Pennsylvania.
- HEIGES, HARVEY E. (1968).....Associate Professor of Geography
B.A., Principia College; M.S., Pennsylvania State University; Ph.D., University of Washington.
- HELLBERG, LARS H. (1956).....Professor of Chemistry
B.S., Northwestern University; Ph.D., University of California, Los Angeles.
- HENDRICKSON, RICHARD H. (1963).....Assistant Professor of English
B.A., University of California, Santa Barbara; M.S., University of Wisconsin; Ph.D., University of Connecticut.
- *HENIG, SUZANNE (1968).....Associate Professor of English
B.A., M.A., Ph.D., New York University.
- HERMAN, ELSIE (Mrs. E.) (1969).....Assistant Professor of Social Work
A.B., M.A., University of Chicago.
- HERRMANN, H. HORST (1967).....Assistant Professor of German
A.B., M.A., San Diego State College; Ph.D. candidate, Stanford University.
- HEUSSER, H. EARL, JR. (1968).....Associate Professor of Secondary Education
B.S., University of Utah; M.A., San Jose State College; Ed.D., University of Oregon.
- HEYMAN, NEIL M. (1969).....Assistant Professor of History
B.A., Yale University; M.A., Ph.D. candidate, Stanford University.
- HIGGINS, WINIFRED H. (Mrs. J.) (1964).....Associate Professor of Art
B.S., Massachusetts College of Art; M.A. (History), Boston College Graduate School; M.A., (Art History), Boston University; Ph.D., University of California, Los Angeles.
- HILL, HOWARD (1967).....Assistant Professor of Music
B.A., University of Washington; graduate study, Juilliard School of Music; M.A., Teachers College, Columbia University.
- HILL, PATRICIA J. (Mrs. J.) (1964).....Assistant Professor of Elementary Education
A.B., M.A., San Diego State College.

- HILL, RICHARD B., JR. (1969).....Assistant Professor of Sociology, Imperial Valley
B.A., M.A., University of Missouri at Kansas City; Ph.D. candidate, University of Missouri,
Columbia.
- HILL, WAYNE O. (1955).....Professor of Elementary Education
B.A., M.Ed., Eastern Washington College of Education; Ed.D., Stanford University.
- HILLIX, WILLIAM A. (1963, except 1967-69).....Professor of Psychology
B.A., M.A., Ph.D., University of Missouri, Columbia.
- HIMES, JOAN K. (1967).....Assistant Professor of Nursing
B.S., University of California, San Francisco; M.N., University of Washington.
- HIMES, RONALD S. (1969).....Assistant Professor of Anthropology
B.S., Georgetown University; M.A., Ateneo de Manila University, Philippines; Ph.D. candi-
date, University of Hawaii.
- HINKLE, JAMES C. (1961).....Assistant Professor of English
B.A., Denison University; M.A., doctoral candidate, Harvard University.
- HINTZMAN, WILLIAM R. (1969).....Assistant Professor of Mathematics
B.A., University of Wisconsin, Milwaukee; M.A., University of Michigan; Ph.D., University
of Wisconsin.
- HIPPAKA, WILLIAM H. (1957).....Professor of Business Law and Real Estate
B.S.C., Jur.D., State University of Iowa.
- HIRD, ROBERT C., II (1967).....Assistant Professor of Real Estate
B.A., Pomona College; M.B.A., Stanford University; D.B.A., Arizona State University.
- HO, HUNG-TA (1966).....Associate Professor of Mathematics
B.Sc., Ordinance Engineering College, China; Sc.M., Virginia Polytechnic Institute; Ph.D.,
Brown University.
- HOBBS, JOHN A. (1964).....Associate Professor of Political Science
A.B., M.A., University of Illinois; Ph.D., Princeton University.
- HODGE, STANLEY B. (1968).....Assistant Professor of Art
B.A., M.A., University of California, Los Angeles.
- HOGG, MERLE E. (1962).....Professor of Music
B.S.Ed., B.S.Mus., Kansas State Teachers College; M.A., M.F.A., Ph.D., State University of
Iowa.
- HOIDAL, ODDVAR K. (1967).....Assistant Professor of History
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- HOLLANDER, EARL D. (1970).....Assistant Professor of Social Work
B.A., Yeshiva University; M.S., Simmons College; Ph.D., University of Pittsburgh.
- HOLLYFIELD, CYNTHIA A. (1968).....Assistant Professor of Physical Education
B.S., Southwest Texas State College; M.A., Ball State University.
- HOLMAN, DOROTHY J. (Mrs.) (1966).....Assistant Professor of Secondary Education
B.S., M.S., North Texas State University, Ed.D., University of Kansas.
- HOLMES, CALVIN V. (1956).....Professor of Mathematics
B.A., M.A., University of Mississippi; M.S., University of Illinois; Ph.D., University of
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- HOWWACH, FRANK S. (1960).....Associate Professor of Journalism
B.S., Edinboro State Teachers College, Pennsylvania; M.A., State University of Iowa.
- HOLT, HOWARD B. (1961).....Professor of Educational Administration
B.S., Ed.M., Oregon State College; D.Ed., University of Oregon.
- HOOVER, GRACE V. (1956).....Assistant Sciences Librarian
A.B., University of Nebraska; B.S. in L.S., University of Denver.
- HOPKINS, JACK R. (1961).....Professor of Art
B.A., California College of Arts and Crafts; M.F.A., Claremont Graduate School.
- HORNBECK, FREDERICK W. (1968).....Assistant Professor of Psychology
B.A., M.S., Yale University; Ph.D., University of California, Los Angeles.
- HOROWITZ, GIDEON (1968).....Associate Professor of Social Work
A.B., M.A., New York University; M.S.W., Ph.D., University of Chicago.
- HOSTETLER, DAVID K. (1966).....Counselor
B.S., University of Tampa; M.Ed., Ed.D., University of Virginia.
- HOWARD, EDGAR J. (1966).....Associate Professor of Mathematics
B.S., M.S., San Diego State College; Ph.D., New Mexico State University.
- HOWARD, GORDON S. (1968).....Associate Professor of Drama
B.S., M.S., University of Oregon; Ph.D., University of Minnesota.
- HOWARD, ROY J. (1963).....Professor of Philosophy
B.A., Lic. Phil., Woodstock College, Maryland; Ph.D., Louvain University, Belgium.
- HUFFMAN, EDWARD W. (1955).....Professor of Zoology
B.S., M.S., University of Illinois; Ph.D., Ohio State University.
- HUFFORD, LYLE E. (1967).....Assistant Professor of Psychology
A.B., M.S., San Diego State College; Ph.D., University of Arizona.
- HULL, MAUREEN A. (Mrs. L. C., Jr.) (1970).....Instructor in Nursing
B.S., Salve Regina College; M.S., Boston College.
- HULS, HARRY E. (1961).....Professor of Elementary Education
B.S., St. Cloud State Teachers College; M.A., Ph.D., University of Minnesota.

- HUNGATE, ROBERT P. (1961, except 1965-69).....Dean, School of Business Administration
B.A., University of Washington; Ph.D., University of California, Los Angeles. Professor of Finance
- HUNRICHS, WILLIAM A. (1957).....Professor of Psychology
B.A., M.A., Ph.D., Stanford University.
- HUNSAKER, DON, II (1960).....Professor of Zoology
B.A., M.S., Texas Technological College; Ph.D., University of Texas.
- HUNT, A. MARK (1970).....Lecturer in Biology
B.A., candidate, University of California, San Diego.
- HUNTER, JAMES J., JR. (1946).....Professor of Secondary Education
A.B., Cornell University; M.S., Ph.D., Syracuse University.
- HUNTER, LAWRENCE B. (1963).....Assistant Professor of Art
A.B., San Diego State College; M.A., University of California, Los Angeles.
- HURD, LYMAN C., III (1958).....Professor of Music
A.B., M.M., Syracuse University.
- HURLBERT, STUART H. (1970).....Assistant Professor of Biology
B.A., Amherst College; Ph.D., Cornell University.
- HURWITZ, SAMUEL J. (1971).....Visiting Professor of History
B.S., Brooklyn College; L.L.B., St. Lawrence University; M.A., Ph.D., Columbia University.
- HUSSAIN, NIHAD A. L. (1969).....Assistant Professor of Mechanical Engineering
B.Sc.M.E., Baghdad University, Iraq; M.Sc.M.E., Purdue University; Ph.D., University of Notre Dame.
- HUTCHINS, ROBERT C. (1968).....Assistant Professor of Finance
B.S., M.S., M.Ed., Florida State University; M.B.A., doctoral candidate, University of Southern California.
- *IKEDA, HITOSHI (1960).....Professor of Education, Imperial Valley
B.A., University of Hawaii; M.A., Iowa State Teachers College; Ed.D., University of New Mexico.
- IKEDA, MIYOSHI (1970).....Assistant Professor of Education, Imperial Valley
B.A., University of Hawaii; M.A., Ph.D., University of New Mexico.
- INGHAM, MURIEL B. (1967).....Associate Professor of English
B.A., Willamette University; M.A., Ph.D., University of California, Riverside.
- INGMANSON, DALE E. (1968).....Assistant Professor of Physical Science
B.S., Rollins College; M.Ed., Rutgers University; Ed.D., University of Florida.
- INSKEEP, JAMES E., JR. (1960).....Professor of Elementary Education
B.S., U.S. Naval Academy; M.A., San Diego State College; Ph.D., University of Minnesota.
- IRGANG, FRANK J. (1956).....Professor of Industrial Arts
B.S., Central Michigan College; M.A., Ph.D., University of Michigan.
- IRONHILL, STEPHEN J. (1970).....Activities Adviser
A.B., San Diego State College.
- IRWIN, MICHAEL A. (1964).....Test Officer
A.B., M.A., San Diego State College.
- ISENSE, ROBERT W. (1948).....Professor of Chemistry
A.B., Reed College; M.A., Ph.D., Oregon State College.
- ISHIKAWA, WESLEY H. (1969).....Associate Professor of Social Work
B.S., Willamette University; M.S.W., University of Denver; D.S.W., University of Southern California.
- JACKSON, CRAWFORD G., JR. (1970).....Assistant Professor of Zoology
A.B., Emory University; M.S., Ph.D., University of Florida.
- JACOBSON, EDWARD A. (1968).....Assistant Professor of Psychology
B.S., Brooklyn College; Ph.D., Indiana University.
- JAMESON, K. CHARLES (1965).....Associate Professor of Telecommunications and Film
B.A., M.A., University of Michigan.
- JANSEN, HENRY L. (1953).....Professor of Political Science
B.A., M.A., University of Oklahoma; Ph.D., University of California.
- *JENCKS, CLINTON E. (1964).....Professor of Economics
B.A., University of Colorado; M.A., Ph.D., University of California.
- JENSEN, REILLY C. (1958).....Professor of Chemistry
B.S., M.S., University of Nevada; Ph.D., University of Washington.
- JIMENEZ-VERA, ARTURO (1970).....Assistant Professor of Spanish-Portuguese
A.B., San Diego State College; M.A., additional graduate study, Arizona State University.
- †JOHNS, DAVID H. (1965).....Associate Professor of Political Science
A.B., Dartmouth College; M.A., Ph.D., University of Chicago.
- JOHNS, GERALD E. (1967).....Assistant Catalog Librarian
B.A., University of California, Santa Barbara; M.S.L.S., University of California, Los Angeles.
- JOHNSON, ALBERT W. (1964).....Dean, College of Sciences; Professor of Biology
B.S., Colorado Agricultural and Mechanical College; M.S., Ph.D., University of Colorado.

* On leave, fall 1970-71.

† On leave, year 1970-71.

- †JOHNSON, BEVERLY M. (Mrs. A. W.) (1964).....Serials Librarian
B.A., University of Alaska; M.A.L.S., University of California, Los Angeles.
- JOHNSON, C. DALE (1963).....Professor of Sociology
B.A., M.A., Ph.D., University of Minnesota.
- JOHNSON, DOROTHY M. B. (Mrs. W. F.) (1970).....Lecturer in Nursing
B.S., Boston University; M.S., University of California, San Francisco Medical Center.
- JOHNSON, ELIZABETH B. (1966).....Assistant Professor of Telecommunications and Film
B.A., University of Washington; M.S., Syracuse University.
- JOHNSON, EULALIA G. (1962).....Professor of Nursing
B.S., Mount St. Mary's College; M.S., University of Colorado.
- JOHNSON, JOSEPH S. (1967).....Assistant Professor of Telecommunications and Film
B.A., University of Utah; Ph.D., Michigan State University.
- JOHNSON, PHILIP E. (1958).....Professor of Civil Engineering
B.S.C.E., University of Idaho; M.S.C.E., University of California. Registered Civil Engineer.
- JOHNSON, WARREN A. (1969).....Assistant Professor of Geography
B.S., University of California; M.S., Ph.D., University of Michigan.
- JOHNSON, WAYMAN H. L. (1969).....Director, Educational Opportunities Program
A.B., San Diego State College.
- JOKELA, ALICE C. (Mrs. A. W.) (1969).....Assistant Professor of Microbiology
B.S., National Taiwan University, Taiwan; M.S., Massachusetts Institute of Technology; Ph.D., University of California, San Diego.
- JONASSON, J. FRANKLIN (1968).....Financial Aid Counselor
B.S., Ed.M., Oregon State University.
- JONES, KENNETH K., JR. (1948).....Professor of Telecommunications and Film
B.S., Northwestern University; M.A., Stanford University.
- JONES, LORRAINE R. (Mrs.) (1966).....Assistant Catalog Librarian
B.A., New York University; M.S.L.S., University of Southern California.
- JONES, RICHARD D. (1968).....Assistant Professor of Anthropology
B.S., Northern Illinois State University; M.Ed., M.A., Ph.D., University of Arizona.
- JONES, WALTER D. (1962).....Professor of Chemistry
B.S., University of Washington; Ph.D., Oregon State College.
- JORDAN, G. RAY, JR. (1966).....Associate Professor of Religious Studies
A.B., Duke University; M.A., Ph.D., University of Southern California.
- *JOSEPH, LIONEL (1947).....Professor of Chemistry
B.S., St. Louis University; M.S., Ph.D., Washington University.
- JOY, NED V. (1953).....Dean of Undergraduate Studies; Professor of Political Science
A.B., Ph.D., University of California.
- JULIAN, JAMES L. (1951).....Professor of Journalism
B.S., B.A., University of Houston; M.A., University of Texas; Ph.D., State University of Iowa.
- †JUTKOWITZ, JOEL M. (1967).....Assistant Professor of Political Science
A.B., Dartmouth College; M.A., Ph.D. candidate, Yale University.
- KAATZ, JAMES M. (1967).....Assistant Professor of Elementary Education
B.A., Andrews University; M.A., California State College, Long Beach; Ed.D. candidate, University of Southern California.
- KAHN, MARION J. (Mrs.) (1967).....Associate Professor of Social Work
B.A., Queens College; M.S., University of Wisconsin.
- KAHNG, TAE JIN (1962).....Professor of Political Science
B.A., Kent State University; M.A., Ph.D., Columbia University.
- KAPLAN, OSCAR J. (1946).....Professor of Psychology
B.A., M.A., University of California, Los Angeles; Ph.D., University of California.
- KAREN, ROBERT L. (1964).....Professor of Psychology
B.A., M.A., University of California, Los Angeles; Ph.D., Arizona State University.
- KARNATH, DAVID L. (1968).....Assistant Professor of English
B.A., Notre Dame University; M.A., Stanford University; Ph.D. candidate, University of Minnesota.
- KARTMAN, ARTHUR E. (1968).....Assistant Professor of Economics
A.B., MacMurray College; M.A., Ph.D., University of Washington.
- KASCH, FREDERICK W. (1948).....Professor of Physical Education
B.S., M.S., University of Illinois; Ed.D., New York University.
- KARR, O. KENNETH, JR. (1969).....Director of Athletics; Professor of Physical Education
B.S., Illinois State University; M.S., Ph.D., University of Illinois.
- KASKOWITZ, DAVID H. (1970).....Assistant Professor of Mathematics
B.A., University of Michigan; M.S., Stanford University.
- KASS, NORMAN (1961).....Professor of Psychology
B.A., M.A., Ph.D., Western Reserve University.
- KASTON, BENJAMIN J. (1964).....Visiting Lecturer in Zoology
B.S., North Carolina State College; Ph.D., Yale University.

† On leave, year 1970-71.

* On leave, fall 1970-71.

- KEEN, ELMER A. (1967).....Associate Professor of Geography
B.A., M.A., Peabody College; Ph.D., University of Washington.
- KEHLER, DOROTHEA F. (Mrs. H. F.) (1970).....Assistant Professor of English
B.A., City College of New York; M.A., Ph.D., Ohio University.
- KEHLER, HAROLD F. (1968).....Assistant Professor of English
B.S., Albright College; M.A., Ph.D., Ohio University.
- KEISER, KENNETH R. (1968).....Assistant Professor of Political Science
A.B., Brown University; doctoral candidate, University of North Carolina.
- KELLER, KARL (1966).....Associate Professor of English
B.A., M.A., University of Utah; Ph.D., University of Minnesota.
- KELLEY, JOSEPH B. (1970) (Under contract 1968-70).....Professor of Social Work
B.S., Lehigh University; M.S.W., Catholic University of America; D.S.W., Columbia University.
- KELLY, BEATRICE L. (1967).....Associate Professor of Microbiology
A.B., University of California; M.A., University of California, Los Angeles; Ph.D., University of Southern California.
- KEMP, MAUDE VON P. (1964).....Associate Professor of Social Work
A.B., Wittenberg College, Ohio; M.A., Johns Hopkins University.
- §KENDALL, W. LLOYD (1961).....Professor of Elementary Education
B.S., Wayne State University; M.A., Miami University, Ohio; Ed.D., University of Maryland.
- KENNEDY, WILL C. (1967).....Assistant Professor of Sociology
B.A., M.A., Ph.D., University of California, Los Angeles.
- KENNEY, LOUIS A. (1961).....Director of Libraries
A.B., Nebraska State Teachers College; B.S. in L.S., M.S. in L.S., University of Illinois; graduate study, University of Zurich; Ph.D., University of Maryland.
- KERN, JOHN P. (1968).....Assistant Professor of Geology
A.B., Ph.D., University of California, Los Angeles.
- KESSEL, ROBERT W. (1969).....Associate Professor of Social Work
A.B., Boston University; M.S.W., University of Michigan; D.S.W. candidate, University of Southern California.
- KESSLER, LOIS P. (Mrs. A.) (1969).....Assistant Professor of Health Science and Safety
R.N., The Hospital of the Good Samaritan, Los Angeles; B.S., University of Rochester; M.A., San Diego State College.
- KHALIL, ISSA J. (1969).....Assistant Professor of Religious Studies
B.A., Eastern Mennonite College; M.A., Ph.D. candidate, University of Chicago.
- KHAZANIE, RAMAKANT G. (1969).....Assistant Professor of Mathematics
B.Sc., M.Sc., Bombay University, India; Ph.D., Purdue University.
- KIEWIET DE JONGE, ENGBERT J. C. (1963).....Associate Professor of Geography
B.A., M.A., Ph.D., Clark University.
- KILLION, JOHN J. (1955).....Physician
B.A. University of Minnesota; M.D., University of Tennessee School of Medicine.
- KING, BONNIE B. (Mrs. I. C.) (1970).....Assistant Professor of English, Imperial Valley
B.A., University of Chicago; M.A., University of Pittsburgh; additional graduate study, University of Kansas.
- †KINNON, WILLIAM D. (1956).....Professor of Psychology
B.S., Boston University; M.Ed., Trinity University; M.A., Ph.D., University of Denver.
- KINSEY, MARGARET E. (Mrs. F. E.) (1961).....Circulation Librarian
A.B., Florida State University; A.B. in L.S., University of North Carolina; M.A., Northwestern University.
- KIRBY, BERNARD C. (1954).....Professor of Sociology
A.B., Denison University; M.A., Ph.D., University of Washington.
- KITCHEN, JAMES D. (1957).....Professor of Public Administration and Urban Studies
B.A., M.A., Ph.D., University of California, Los Angeles.
- KLANN, CORINNE F. (1962).....Assistant Professor of Elementary Education
B.A., Western Washington College; M.A., Teachers College, Columbia University.
- †KLAPP, ORRIN E. (1948).....Professor of Sociology
M.A., Ph.D., University of Chicago.
- KLEMER, ELIZABETH J. (1953).....Associate Professor of Elementary Education
B.E., National College of Education; M.A., George Peabody College; graduate study at Teachers College, Columbia University and Stanford University.
- KLEINBERGS, SKAIDRITE (Mrs. V. F.) (1969).....Assistant Professor of Biology
B.S., Eastern Michigan University; M.S., Ph.D., University of Michigan.
- KNUDSEN, RICHARD I. (1967).....Counselor
B.S., University of Minnesota; B.Th., Augsburg Seminary; M.A., University of Minnesota; S.T.D., Lutheran School of Theology, Chicago.
- KOBAYASHI, YOSHIKO (1970).....Lecturer in Classical and Oriental Languages
B.A., Doshisha University; M.A., Claremont Graduate School.

§ Assigned duty in Brazil, 1970-71.

‡ On leave, year 1970-71.

† On leave, spring 1970-71.

- KOCHANSKI ADRIAN J. (1969).....Dean of Academic Planning;
Professor of Public Administration
A.B., M.A. (Classics), M.A. (Theology), St. Louis University; Ph.D., University of Chicago.
- KOESTER, GEORGE A. (1950).....Executive Dean; Professor of Education
B.S., Midland College; M.A., University of Colorado; Ph.D., University of Minnesota.
- KOHLER, RICHARD C. (1969).....Assistant Professor of English
B.A., Colorado State University; M.A., Ph.D., University of California, Los Angeles.
- KOPP, HARRIET G. (Mrs. G. A.) (1970).....Professor of Speech Pathology and Audiology
B.A., M.A., Brooklyn College; Ph.D., Columbia University.
- KOPP, ROBERT P. (1966).....Assistant Professor of Mathematics
B.S., University of Chicago; M.S., University of Illinois; Ph.D., University of Michigan.
- KOPPELMAN, WALTER H. (1965, except 1967-68).....Associate Professor of Philosophy
B.S., City College of New York; J.D., New York University; Ph.D., Columbia University.
- KOPPMAN, JERRY W. (1963).....Associate Professor of Psychology
B.S., University of Kentucky; A.M., Ph.D., University of Illinois.
- KOZLIK, LUDEK A. (1965).....Associate Professor of Russian
B.A., M.A., Ph.D., University of Texas.
- KREKORIAN, CHARLES O. (1970).....Assistant Professor of Zoology
A.B., M.A., California State College, Los Angeles; Ph.D., University of Toronto.
- *KRISHNAMOORTHY, GOVINDARAJALU (1968).....Associate Professor of Civil Engineering
B.E., College of Engineering, India; M.S.C.E., Ph.D., Illinois Institute of Technology.
- *KRUMMENACHER, DANIEL (1968).....Associate Professor of Geology
M.S. (Chemistry), M.S. (Geology), Ph.D., University of Geneva.
- KUDOH, KAZUHISA (1970).....Lecturer in Economics
B.A., M.A., University of Tokyo; Ph.D. candidate, University of Chicago.
- KURTZ, DONALD V. (1967).....Assistant Professor of Anthropology
B.A., M.A., University of California; Ph.D. candidate, University of California, Davis.
- KWALLEK, NANCY B. (Mrs. V. F.) (1969).....Assistant Professor of Home Economics
B.S., Kent State University; M.S., Oregon State University.
- LAIHO, ETHEL E. (1964).....Associate Professor of Nursing
Diploma, Mount Zion Hospital School of Nursing, San Francisco; A.B., San Francisco State College; M.S., University of Oregon.
- LAKER, LASH H. (1970).....Coordinator of Placement
B.S., Utah State University; M.Ed., Willamette University.
- LALLY, HARVEY J. (1970).....Assistant Professor of Sociology
B.A., University of Queensland, Australia; M.A., Ph.D., University of Minnesota.
- LAMB, ALMA S. (Mrs. G. F.) (1962).....Assistant Education Resource Center Librarian
B.S., University of Alabama.
- LAMBERT, ARTHUR A. (1960).....Professor of Music
B.S., M.A., M.F.A., Ph.D., State University of Iowa.
- LA MONICA, GRACE (Mrs. J.) (1966).....Assistant Professor of Nursing
R.N., St. Francis School of Nursing; B.S., University of Connecticut; B.S., University of California; M.S. (Public Health Nursing) University of California, Los Angeles.
- LANDIS, JEAN (Mrs.) (1969).....Assistant Professor of Physical Education
A.B., San Diego State College; M.S., Wellesley College; additional graduate study, University of Delaware.
- LANDIS, VINCENT J. (1954).....Professor of Chemistry
B.S., Washington State College; Ph.D., University of Minnesota.
- LANGENBACH, ROBERT G. (1959).....Professor of Information Systems
B.A., M.A., Montana State University; Ed.D., University of California, Los Angeles.
- LAPLANTZ, DAVID M. (1970).....Lecturer in Art
B.S., Bowling Green State University; M.F.A., Cranbrook Academy of Art.
- LA PRAY MARGARET H. (1959).....Professor of Elementary Education
B.S., M.A., University of Minnesota; Ph.D., Cornell University.
- LaSOR, ELIZABETH A. (1968).....Assistant Professor of Nursing
R.N., Pasadena City College; B.S., Los Angeles State College; M.N., University of California, Los Angeles.
- LAUER, ROSEMARY Z. (1969).....Associate Professor of Philosophy
B.A., University of Dayton; M.A., Ph.D., St. Louis University.
- LAWSON, RICHARD H. (1957).....Professor of German
B.A., M.A., University of Oregon; Ph.D., University of California, Los Angeles.
- LEACH, LARRY L. (1968).....Assistant Professor of Anthropology
B.A., M.A., Ph.D., University of Colorado.
- LEARNED, VINCENT R. (1968).....Professor of Electrical and Electronic Engineering
B.S., University of California; Ph.D., Stanford University.
- *LEASURE, J. WILLIAM (1962).....Professor of Economics
B.A., University of New Mexico; M.A., Ph.D., Princeton University.

* On leave, fall 1970-71.

- LEBARRON, EVANGELINE O. (Mrs. H. E.) (1946, except 1948-49).....Professor of Information Systems
B.A., B.S., University of Iowa; B.A., Sioux Falls College; additional graduate study at Claremont Colleges, Universities of Southern California, Minnesota and Hawaii.
- LECKART, BRUCE T. (1968).....Associate Professor of Psychology
B.A., M.A., Ph.D., Michigan State University.
- LEE, GORDON F. (1958).....Publications and Public Relations Officer
A.B., Drew University; M.S., Columbia University.
- LEE, PHOEBE J. (1960).....Professor of Nursing
Diploma, B.S., Stanford University School of Nursing; M.S., University of California, Los Angeles.
- LEE, ROBERT E. (1956).....Professor of Telecommunications and Film
B.A., M.A., University of Nebraska.
- LEE, WILLIAM F. (1965).....Professor of Social Work
B.A., San Francisco State College; M.S.W., D.S.W., University of California.
- LEERHOFF, RUTH E. (1964).....Serials Librarian
B.A., Iowa State Teachers College; M.A., University of Denver.
- LEGERRETTE, CARLOS E. (1970).....Director, Educational Opportunities Program
Study at San Diego State College.
- †LEIFFER, DONALD B. (1948).....Professor of Political Science
A.B., University of California, Los Angeles; M.A., Ph.D., Harvard University.
- LEMME, MAURICE M. (1948).....Dean of the Graduate Division; Professor of Mathematics
A.B., Oakland College; M.A., Indiana University; Ph.D., Purdue University.
- LEMON, DELORES D. (1970).....Tutorial Coordinator, Educational Opportunities Program
A.B., San Diego State College.
- *LEMUS, GEORGE (1960).....Professor of Spanish
Study at the Universidad Nacional Autónoma de México; B.A., M.A., Ph.D., University of Texas.
- LEOBOLDT, HELEN E. (Mrs. C. C.) (1968).....Assistant Circulation Librarian
B.S., La Crosse State College; B.L.S., University of Wisconsin.
- LEONHARDT, KARLFRIITZ (1970).....Associate Professor of Civil Engineering
Dipl. Ing., Technical University, Munich, Germany; M.S.C.E., Ph.D. candidate, University of Washington.
- LESLEY, FRANK D. (1970).....Assistant Professor of Mathematics
B.S., Stanford University; M.A., Ph.D., University of California, San Diego.
- LESLIE, NORMAN C. (1969).....Assistant Professor of Nursing
R.N., Rockland State Hospital; B.S., California State College, Long Beach; M.N., University of California, Los Angeles.
- LESSLEY, MERRILL J. (1970).....Assistant Professor of Drama
B.F.A., University of Utah; M.A., University of Minnesota; Ph.D., University of Utah.
- LEUKEL, FRANCIS P. (1956).....Professor of Psychology
B.S., University of Florida; M.S., Northwestern University; Ph.D., University of Washington.
- LEVINE, JOSEPH R. (1965).....Associate Professor of Psychology
B.A., Brooklyn College; M.A., Ph.D., Michigan State University.
- LEWIN, HARLAN J. (1967).....Assistant Professor of Political Science
A.B., Harvard College; M.A., Ph.D., University of California.
- LIBBY, WILLARD G. (1969).....Associate Professor of Geology
B.S., Oregon State College; M.S., Northwestern University; Ph.D., University of Washington.
- LIENERT, CHARLES (1954).....Professor of Educational Administration
B.E., Southern Illinois University; M.S., University of Illinois; Ed.D., Colorado State College of Education.
- LIGHTNER, KEVIN M. (1968).....Assistant Professor of Accounting
B.S., San Jose State College; M.B.A., Ph.D., University of California, Los Angeles.
- LILLEGRAVEN, JASON A. (1969).....Assistant Professor of Zoology
B.A., California State College, Long Beach; M.S., South Dakota School of Mines and Technology; Ph.D., University of Kansas.
- LILLY, ROGER A. (1968).....Assistant Professor of Physics
B.S., M.A., University of Southern California; Ph.D., University of Hawaii.
- LIN, MAO-SHIU (1966).....Associate Professor of Electrical and Electronic Engineering
B.S.E., National Taiwan University, Taiwan; M.S.E., Ph.D., University of Michigan.
- LINDGREN, DONALD A. (1965).....Associate Professor of Marketing
B.B.A., M.B.A., Ph.D., University of Wisconsin.
- LINGREN, PAUL A. (1957).....Professor of Art
B.A., University of California, Santa Barbara College; M.A., University of California, Los Angeles.
- LINTON, MARIGOLD L. (Mrs.) (1964).....Associate Professor of Psychology
B.A., University of California, Riverside; M.A., State University of Iowa; Ph.D., University of California, Los Angeles.

† On leave, year 1970-71.

* On leave, fall 1970-71.

- LIPPOLD, LOIS K. (1968).....Assistant Professor of Anthropology
B.S., M.S., Ph.D. candidate, University of Wisconsin.
- LOCKMAN, EVELYN (1948).....Professor of Physical Education
B.A., Vanderbilt University; M.A., George Peabody College; graduate study at New York University and University of Wisconsin; additional special study in dance.
- LODGE, CHESTER R. (1954).....Professor of Electrical and Electronic Engineering
B.S.E.E., M.S., Ph.D., State University of Iowa.
- LOGAN, JACK D. (1969).....Assistant Professor of Music
B.M., M.M., Southern Methodist University; Ph.D. candidate, University of California, San Diego.
- LONGENECKER, MARTHA W. (Mrs. J. I.) (1955).....Professor of Art
B.A., University of California, Los Angeles; M.F.A., Claremont Graduate School.
- LOOMIS, DAVID M. (1961).....Assistant Professor of Music
B.M., Westminster Choir College; M.M. and additional graduate study, Indiana University.
- LOPEZ, GENOVEVO C. (1961).....Associate Professor of Mathematics
B.A., Ph.D., University of California, Los Angeles.
- LUCIUS, EMILY A. (Mrs. C. W.) (1970).....Lecturer in Social Work
A.B., University of Richmond; M.S.S., Smith College.
- LUPONE, ORLANDO J. (1964).....Associate Professor of Elementary Education
B.S., New York University; M.S., Teachers College, Columbia University; Ph.D., St. John's University, New York.
- LYBARGER, ALVIN E. (1970).....Assistant Professor of Industrial Arts
B.A., Kearney State Teachers College; M.A., Colorado State College; Ed.D. candidate, Utah State University.
- LYNN, ELIZABETH (1963).....Associate Professor of Psychology
B.A., Linfield College, Oregon; M.S., Ph.D., University of Oregon.
- MACKY, DAVID W. (1969).....Associate Professor of Mathematics
B.Sc., Allegheny College; M.Sc., Ph.D., Michigan State University.
- MADHAVAN, MURUGAPPA C. (1968).....Associate Professor of Economics
B.A., M.A., Annamalai University, India; M.Sc., Ph.D., University of Wisconsin.
- MADSEN, ROY P. (1966).....Associate Professor of Telecommunications and Film
B.F.A., University of Illinois; M.A., Ph.D., University of Southern California.
- MAHONEY, LEO J., JR. (1969).....Ombudsman
A.B., M.S.W., San Diego State College.
- MAHONEY, PATRICK (1970).....Assistant Professor of Information Systems
B.A., B.S.E.E., Rice University; M.B.A., University of California.
- MAIRE, JUDITH A. (1967).....Assistant Professor of Nursing
B.S.N., Seattle University; M.N., University of Washington.
- †MALCOLM, DAVID D. (1953).....Professor of Counselor Education
A.B., Harvard College; Ed.M., Boston University; Ph.D., Northwestern University.
- MALIK, JIM G. (1957).....Professor of Chemistry
A.B., Wabash College; Ph.D., Michigan State University.
- MALLEY, MICHAEL M. (1970).....Assistant Professor of Chemistry
B.S., Stanford University; Ph.D., University of California, San Diego.
- MANIS, FRANCIS A. (1968).....Associate Professor of Social Work
B.S., University of California; B.A., University of California, Santa Barbara; M.S., Columbia University.
- MANJOS, THELMA D. (Mrs. P.) (1969).....Assistant Professor of Counselor Education
B.A., University of California, Los Angeles; M.A., San Francisco State College; Ph.D., New York University.
- MANN, RICHARD L. (1968).....Associate Professor of Electrical and Electronic Engineering
B.S.E.E., Ohio University; M.S.E.E., University of New Mexico. Registered Professional Electrical Engineer.
- MANSFIELD, GEORGE A., JR. (1968).....Assistant Professor of Mechanical Engineering
B.M.E., University of Detroit; M.S.M.E., San Diego State College.
- MARCUS, BERNARD (1966).....Assistant Professor of Mathematics
B.S., M.S., Ph.D., University of Arizona.
- MARCUSE, INGE S. (Mrs. H.) (1970).....Lecturer in French
M.A. (History), Columbia University; M.A. (French), Boston University.
- MAROSZ, WANDA A. (Mrs. H.) (1967).....Assistant Professor of Mathematics
B.S., University of Chicago; M.A., University of Southern California.
- MARRIOTT, LOIS I. (Mrs. F. D.) (1966).....Lower Division Librarian
B.A., State University of Iowa; M.A.L.S., University of Wisconsin.
- MARSTERS, HAROLD L. (1962).....Assistant Professor of Industrial Arts
B.A., M.A., Chico State College.
- MARTIN, DONALD R. (1969).....Assistant Professor of Telecommunications and Film
B.A., Otterbein College; M.S., Syracuse University; Ph.D., Ohio State University.
- MARTIN, JEAN-PIERRE (1970).....Lecturer in History
License (Philosophy), License (English), Agregation, Sorbonne.

- MARTIN, KATHLEEN J. (Mrs. V. A.) (1970).....Assistant Professor of Home Economics
B.A., Iowa State Teachers College; M.S., Arizona State University.
- MARTIN, MARY F. (1958).....Assistant Professor of Home Economics
B.S., University of Idaho; M.S., Oregon State College.
- MARTINEZ, JESSE (1970).....Lecturer in Mexican-American Studies
A.B., University of the Americas; M.A. candidate, San Diego State College.
- MATHEWSON, JAMES H. (1964).....Associate Professor of Chemistry
A.B., Harvard College; M.A., Ph.D., Johns Hopkins University.
- MAX, STEFAN L. (1964).....Professor of French
B.A., Sir George Williams University, Canada; M.A., McGill University, Montreal; Ph.D., University of California, Los Angeles.
- MAXWELL, JEAN M. (1963).....Professor of Social Work
B.A., University of Minnesota; M.S.S., Western Reserve University.
- MAYBERRY, ELIZABETH A. (Mrs. M. W.) (1969).....Instructor in Nursing
B.S.N., University of Bridgeport; M.S.N., Yale University.
- McADAMS, HENRY E. (1966).....Counselor
A.B., Occidental College; A.M., Ph.D., University of Southern California.
- McALLISTER, T. WAYNE (1966).....Assistant Professor of Library Science
B.A., Arizona State University; M.A., University of Denver.
- McAMIS, LESSLEY J. (Mrs.) (1963).....Documents Librarian
B.A., University of Southern California.
- McBLAIR, WILLIAM (1948).....Professor of Biology
A.B., San Diego State College; Ph.D., University of California, Los Angeles.
- McCABE, ROBERT E. (1968).....Assistant Professor of Secondary Education
B.A., Michigan State University; A.M., Ph.D., University of Michigan.
- McCLARD, Q. DONAVON (1966).....Associate Professor of Special Education
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- McCLINTIC, JOSEPH O. (1946).....Professor of Economics
A.B., Central College; A.M., University of Missouri; Ph.D., University of Wisconsin.
- McCLURG, JACK (1962).....Professor of Philosophy
M.D., State University of Iowa; M.A., Ph.D., University of Chicago.
- McCORDICK, SHARON M. (1969).....Assistant Professor of Psychology
B.A., M.A., Ph.D., University of Colorado.
- McCORNACK, ROBERT L. (1968).....Director of Institutional Studies
B.A., University of Iowa; M.A., Ph.D., University of Minnesota.
- McCOY, PAUL W. (1970).....Registrar
B.A., Carleton College; M.A., Cornell University.
- McCOY, C. ROBERT (1960).....Assistant Professor of English
B.A., M.A., Drake University.
- McCOY, LEONE D. (Mrs. W.) (1967).....Associate Professor of Secondary Education
B.A., M.A., Ph.D., University of California.
- McDONALD, JOHN A. (1968).....Assistant Professor of History
B.A., M.A., University of San Francisco; Ph.D. candidate, University of California, Los Angeles.
- McDONALD, ROY D. (1963).....Associate Professor of Psychology
B.A., Ph.D., University of Texas.
- McELMURY, SCOTT S. (1970).....Assistant Professor of Mechanical Engineering
B.S.M.E., M.S.M.E., San Diego State College; Ph.D., University of California, San Diego.
- McEOWEN, ROBERT H. (1967).....Assistant Professor of Industrial Arts
B.S., M.S., Abilene Christian College; Ph.D., East Texas State University.
- McEUN, ROBERT B. (1969).....Assistant Professor of Geology
B.A., M.A., University of California; Ph.D., University of Utah.
- McFALL, JOHN (1966).....Associate Professor of Marketing
M.A., Glasgow University, Scotland; Ph.D., University of California, Los Angeles.
- McGHIE, ROBERT D. (1967).....Associate Professor of Aerospace Engineering
B.S., University of California; M.S.M.E., San Diego State College; Ph.D., University of California, Davis.
- McJUNKINS, THOMAS O. (1959).....Assistant Professor of Sociology
B.S., Arkansas Baptist College; A.B., Morehouse College; M.A., Atlanta University; additional graduate study, Indiana University.
- McLEAN, NORMAN, JR. (1965).....Associate Professor of Zoology
B.S., Ph.D., University of California.
- McLEOD, DAN D. (1964).....Assistant Professor of English
B.A., Pomona College; M.A., San Diego State College; Ph.D., Claremont Graduate School.
- McLEVIE, JOHN G. (1970).....Assistant Professor of Secondary Education
B.A., M.A., Victoria University of Wellington; Ph.D., Michigan State University.
- McLONEY, WIRT L. (1949).....Professor of Industrial Arts
A.B., Western State College; M.A., Colorado State College of Education; Ed.D., University of California, Los Angeles.
- McMULLEN, JAMES D. (1958).....Professor of Industrial Arts
B.S., M.S., Oregon State College; Ed.D., University of Southern California.

- McMULLEN, JAY L. (1970).....Lecturer in Telecommunication and Film
B.S., Columbia University; additional graduate study, Dartmouth College.
- McTAGGART, AUBREY C. (1962).....Professor of Health Science and Safety
B.P.E., University of British Columbia; M.S., Ph.D., University of Illinois.
- MEADOR, BRUCE S. (1970).....Activities Adviser
B.A., M.E., Ph.D., University of Texas.
- MEADOR, THOMAS C. (1966).....Assistant Professor of Telecommunications and Film
B.A., M.A., Michigan State University.
- MEEK, DORIS A. (Mrs. J. R.) (1968).....Associate Professor of Secondary Education
B.A., M.Ed., Mills College; Ed.D., University of California.
- MELCHIOR, HERBERT R. (1967).....Assistant Professor of Biology
A.B., Middlebury College; M.S., University of New Hampshire; Ph.D. candidate, University of Wisconsin.
- MELTON, JOSEPH (1967).....Associate Professor of Elementary Education
B.A., M.Ed., Ed.D., Wayne State University.
- MERRILL, JOHN E. (1946).....Professor of History
A.B., Stanford University; A.M., Harvard University; Ph.D., Stanford University.
- MERZBACHER, CLAUDE FELL (1947).....Professor of Physical Science
B.S., University of Pennsylvania; M.A., Claremont Graduate School; Ed.D., University of California, Los Angeles. Certificat d'Etudes Francaises. Licensed Professional Chemical Engineer.
- MESSIER, LEONARD N. (1946).....Professor of French
A.B., San Diego State College; M.A., Ph.D., University of California. Officer dans l'Ordre des Palmes Académiques.
- METZGER, ROBERT P. (1968).....Assistant Professor of Physical Science
B.S., University of California, Los Angeles; M.S., San Diego State College; Ph.D., San Diego State College and University of California, San Diego.
- MILES, ELIJAH W. (1966).....Associate Professor of Political Science
A.B., Prairie View Agricultural and Mechanical College, Texas; A.M., Ph.D., Indiana University.
- MILLER, ALLAN W. (1963).....Associate Professor of Art
B.A., M.A. and additional graduate study, University of California, Los Angeles.
- MILLER, PHILIP C. (1965).....Associate Professor of Biology
B.A., Oberlin College; M.S., Iowa State University; Ph.D., University of Colorado.
- MILLER, RALPH L. (1963).....Professor of Counselor Education
B.A., Houghton College, New York; B.D., Th.M., Princeton Theological Seminary; Ph.D., Michigan State University.
- MILLS, JACK (1957).....Professor of Speech Communication
A.B., M.A., University of Florida; Ph.D., University of Illinois.
- MILNE, DAVID S. (1946).....Professor of Sociology
A.B., University of California, Los Angeles; M.A., University of Southern California; Ph.D., University of Chicago.
- MILNE, THAIR S. (Mrs. D. S.) (1968).....Assistant Professor of Home Economics
A.B., University of California, Los Angeles; M.A., San Diego State College.
- MITCHELL, ARTHUR J. (1963).....Associate Professor of Special Education
A.B., Nebraska State Teachers College; M.A., University of Denver; Ed.D., Colorado State College.
- MITCHELL, DANLEE G. (1964).....Assistant Professor of Music
B.S., M.S., University of Illinois.
- MITTON, DARYL G. (1966).....Associate Professor of Management
B.C.E., M.B.A., Ph.D., University of Minnesota.
- MOANEY, ERIC R. (1968).....Assistant Professor of Art
B.F.A., Rhode Island School of Design; M.F.A., Syracuse University.
- MOE, CHESNEY R. (1931).....Professor of Physics
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- MOE, JEAN T. (Mrs. S.) (1970).....Assistant Professor of Music
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- †MOE, RONALD C. (1967).....Assistant Professor of Political Science
B.A., Claremont Men's College; M.A., Ph.D., Columbia University.
- MOFFETT, MYRNA J. (Mrs. F. L.) (1968).....Assistant Professor of Nursing
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- MOLLENAUER, SANDRA O. (Mrs.) (1970).....Assistant Professor of Psychology
B.A., Chatham College; Ph.D., State University of New York at Buffalo.
- MONTEVERDE, JOHN P. (1954).....Professor of English
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- MOOERS, JACK D. (1968).....Assistant Professor of Elementary Education
A.B., San Jose State College; M.A., San Diego State College; Ed.D., University of California, Los Angeles.
- MOORE, HAROLD B. (1960).....Professor of Microbiology
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† On leave, year 1970-71.

- MOORE, PATRICIA J. (1964).....Assistant Documents Librarian
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B.S., M.S., and additional graduate study, University of Illinois.
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B.A., Long Island University; M.A., Ph.D., University of Utah.
- MORENO, STEVE G. (1969).....Assistant Professor of Elementary Education
B.A., M.A., Ed.D., Colorado State College.
- MORGAN, CHARLES (1949).....Professor of Mechanical Engineering
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- MORGAN, RUTH H. (1968).....Professor of Social Work
B.S., Ohio University; M.S.W., University of Southern California; D.S.W., Columbia University.
- MORRIL, RICHARD A. (1970).....Counselor
B.S., University of Massachusetts; M.A., Ph.D., Michigan State University.
- MORRIS, JOYCE (Mrs.) (1969).....Assistant Professor of Elementary Education
B.A., San Jose State College; M.A., Ph.D., University of New Mexico.
- MORRIS, RICHARD H. (1957).....Professor of Physics
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- MORRIS, RUTH I. (Mrs. J. R.) (1970).....Assistant Professor of Home Economics
B.S., M.A., Ball State University.
- MORRIS, WILLIAM P. (1970).....Assistant Professor of Secondary Education
B.A., Antioch College; Ed.M., Tufts University; Ph.D., Indiana University.
- MORTENSEN, CARL F. (1970).....Assistant Professor of Mathematics
B.S., Northwestern University; M.S., Purdue University.
- MOSER, JOSEPH M. (1959).....Professor of Mathematics
B.A., St. John's University, Minnesota; M.A., Ph.D., St. Louis University.
- MOSES, DOROTHY V. (1958).....Professor of Nursing
R.N., St. Luke's Hospital, N.Y.; B.S., P.H.N., M.S., University of California, Los Angeles.
- MOURATIDES, NICOS N. (1960).....Professor of Sociology
B.A., Cornell College; M.A., Ph.D., University of Minnesota.
- MOYE, KENNETH G. (1965).....Lecturer in Engineering
A.B., San Diego State College.
- MRACEK, JAROSLAV J. S. (1965).....Associate Professor of Music
M.B., University of Toronto; M.A., Ph.D., Indiana University.
- MUNTER, ROBERT L. (1964).....Professor of History
B.A., M.A., University of Washington; Ph.D., University of Cambridge.
- MURDOCK, DORIS G. (Mrs. G.) (1960).....Catalog Librarian
A.B., University of Redlands; B.S. in L.S., University of Illinois.
- MURPHY, JAMES R. (1970).....Career Counselor
A.B., San Diego State College.
- MURPHY, MARGARET L. (Mrs. S. U.) (1955).....Professor of Physical Education
B.A., University of California; M.S., Ed.D., University of Oregon.
- MURPHY, MONICA A. (1969).....Assistant Professor of Elementary Education
B.A., Colorado State College; M.A., Ph.D., University of Iowa.
- MURPHY, ROBERT J. (1964).....Associate Professor of Mechanical Engineering
B.S.M.E., M.S.M.E., Ph.D., Carnegie Institute of Technology.
- NAGEL, THOMAS S. (1969).....Assistant Professor of Elementary Education
B.S., University of Idaho; Ph.D., Michigan State University.
- NAM, WOO HYUN (1968).....Assistant Professor of Economics
B.A., Yonsei University, Korea; M.A., University of Oregon; Ph.D., University of Washington.
- NARANG, BALBIR S. (1968).....Assistant Professor of Aerospace Engineering
B.S., M.S., Ph.D., University of Illinois.
- NARDELLI, ROBERT R. (1953).....Professor of Elementary Education
B.A., M.A., Arizona State College; Ph.D., University of California.
- NASATIR, ABRAHAM PHINEAS (1928).....Professor of History
A.B., M.A., Ph.D., University of California.
- NEEL, JAMES W. (1963).....Professor of Biology
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- NELSON, BURT (1957).....Professor of Astronomy
B.S., M.S. (Astronomy), M.S. (Philosophy), Ph.D., University of Wisconsin.
- NELSON, HILDA B. (Mrs. B.) (1965).....Associate Professor of French
M.A., Ph.D., University of Wisconsin.
- NELSON, SHERWOOD M. (1956).....Professor of Philosophy
A.B., Phillips University; M.A., Ph.D., University of California.
- NELSON, THOMAS A. (1968).....Assistant Professor of English
B.A., Oklahoma University; M.A., Wichita State University; Ph.D., Tulane University.

- NESVIG, DAVID T. (1967).....Counselor
B.A., Pacific Lutheran University; M.S., Ed.D. candidate, Indiana University.
- NESVOLD, BETTY A. (Mrs. A.) (1967).....Associate Professor of Political Science
A.B., M.A., San Diego State College; Ph.D., University of Minnesota.
- NEUBERGER, BRIAN M. (1969).....Assistant Professor of Finance
B.S., Utah State University; M.B.A., Northwestern University; D.B.A., Indiana University.
- NEUMAN, DONALD R. (1967).....Counselor
B.S., North Central College, Ill.; M.S., Illinois State University; Ph.D., Michigan State University.
- *NEUNER, EDWARD J., JR. (1957).....Professor of Economics
A.B., Brooklyn College; A.M., University of Wisconsin; Ph.D., Columbia University.
- NEYNDORFF, HANS (1962).....Reference Librarian
B.S., LL.B., University of Indonesia; Doctorandus, University of Leiden; Library Diploma, Netherlands Institute for Documentation and Research.
- NICHOLS, ALAN C. (1964).....Associate Professor of Speech Pathology and Audiology
B.S., Bowling Green State University; M.A., Ph.D., Ohio State University.
- NICHOLS, PAUL F. (1965).....Associate Professor of Physics
B.S., College of William and Mary; Ph.D., Duke University.
- NICHOLS, PRESCOTT S. (1966).....Assistant Professor of English
A.B., M.A., Stanford University; Ph.D., University of Redlands.
- NOORANY, IRAJ (1963).....Professor of Civil Engineering
B.S.C.E., University of Tehran; M.S.C.E., Ph.D., University of California.
- NORLAND, CALVERT E. (1947).....Associate Professor of Zoology
A.B., Pomona College; M.S., University of California; additional graduate study, Claremont College.
- NORMAN, NELSON F. (1960).....Professor of History
B.A., Stanford University; M.A., Harvard University; M.A., Fresno State College; Ph.D., University of Illinois.
- NOTO, JAMES V. (1969).....Assistant Professor of Health Science and Safety
B.S., Slippery Rock State College; M.S., H.S.D., Indiana University.
- †NOWER, LEON (1963).....Associate Professor of Mathematics
B.S., City College of New York; M.S., Ph.D., Stanford University.
- NUÑEZ, RENE (1969).....Director of Centro de Estudios Chicanos;
Associate Professor of Mexican-American Studies
B.A., University of California, Los Angeles.
- NYE, WILLIAM A. (1962).....Professor of Finance
B.S., Ph.D., University of Pennsylvania.
- OADES, RIZALINO A. (1969).....Assistant Professor of History
B.A., Far Eastern University, Philippines; M.A., University of Hong Kong; Ph.D. candidate, University of Hawaii.
- O'BRIEN, ALBERT C. (1965).....Assistant Professor of History
A.B., Providence College; A.M.T., Harvard University; Ph.D., University of Notre Dame.
- O'BRIEN, BOB R. (1966).....Associate Professor of Geography
B.S., M.A., University of Texas; Ph.D., University of Washington.
- †O'BRIEN, MARY M. (Mrs. A.) (1966).....Assistant Professor of Spanish
B.S., North Dakota State University; M.A., Ph.D., University of Colorado.
- O'BYRNE, ERNEST B. (1954).....Vice President for Administration
A.B., A.M., Colorado State College of Education; Ph.D., Stanford University.
- †O'DAY, EDWARD F., JR. (1957).....Professor of Psychology
B.S., M.A., Ph.D., University of Florida.
- ODENDAHL, ERIC M. (1964).....Associate Professor of Journalism
B.A., University of New Mexico; M.A., State University of Iowa; Ph.D., University of Missouri.
- ODMARK, VERN E. (1952).....Professor of Accounting
B.S., St. Cloud State Teachers College; M.A., University of Minnesota; Ph.D., University of Missouri; Public Accountant.
- OHNESORGE, JAMES P. (1969).....Assistant Professor of Psychology
A.B., Indiana University; Ph.D. candidate, University of Minnesota.
- OHNYSTY, BASIL (1967).....Associate Professor of Mechanical Engineering
B.S., M.S., University of Illinois. Registered Professional Metallurgical Engineer.
- OLSEN, ALBERT W. (1957).....Professor of Physical Education
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- OLSEN, LYLE I. (1961).....Professor of Physical Education
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- OLSON, JON R. (1969).....Lecturer in Physical Science
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* On leave, fall 1970-71.

† On leave, year 1970-71.

† On leave, spring 1970-71.

- OLSSON, NANCY J. (1969).....Placement Interviewer
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- O'NEAL, H. EDWARD (1961).....Professor of Chemistry
B.A., Harvard College; Ph.D., University of Washington.
- ONSTAD, GWEN (Mrs.) (1966).....Counselor
B.S., University of Miami; M.A., Ed. D., Colorado State College.
- ONTELL, ROBERT (1965).....Professor of Social Work
A.B., M.S.W., University of California; D.S.W., Columbia University.
- O'REILLY, PETER (1968).....Professor of Philosophy
B.A., M.A., S.T.B., S.T.L., St. Mary of the Lake Seminary; L.M.S., Pontifical Institute of Mediaeval Studies, Toronto; Ph.D., University of Toronto.
- ORTH, FREDRICK J. (1965).....Assistant Professor of Art
B.A., M.F.A., University of Washington.
- OSGOOD, JUDITH A. (1970).....Counselor
B.A., M.A., Michigan State University; Ph.D. candidate, Arizona State University.
- OVERTON, FRIEND R. (1969).....Lecturer in Music
B.S., A.M., University of Missouri, Columbia.
- OWEN, MACK (1969).....Assistant Professor of Drama
B.A., Mercer University; M.A., San Francisco State College; Ph.D., University of Michigan.
- PADGETT, L. VINCENT (1956).....Professor of Political Science
B.S., Ph.D., Northwestern University.
- PALMER, DENNIS (1965).....Assistant Professor of French
A.B., Southern Methodist University; graduate study, Yale University and University of California.
- PALMIOTTO, CAROL E. (Mrs. A. J.) (1969).....Assistant Professor of Physical Education
B.S., New York University; M.A., University of Illinois.
- PANOS, NICHOLAS (1968).....Assistant Professor of Electrical and Electronic Engineering
B.S.E.E., Columbia University; M.S.E.E., San Diego State College. Registered Professional Electrical Engineer.
- PAOLINI, PAUL J., JR. (1970).....Assistant Professor of Biology
B.S., M.S., Rensselaer Polytechnic Institute; Ph.D., University of California, Davis.
- PAPWORTH, FRANK R. (1967).....Assistant Professor of Art
A.B., San Diego State College; M.A., University of California, Los Angeles.
- PARKER, CHRISTOPHER E. (1966).....Associate Professor of Psychology
A.B., M.A., San Diego State College; Ph.D., University of California, Los Angeles.
- PARSONS, JOHN A. (1965).....Associate Professor of Biology
A.B., Washington and Jefferson College; M.S., Pennsylvania State University; Ph.D., Florida State University.
- PATTERSON, EMILY H. (Mrs.) (1967).....Assistant Professor of English
B.S., Bowling Green State University; M.A., Ph.D., University of Utah.
- PAULIN, HARRY W. (1962).....Professor of German
B.A., North Central College, Illinois; A.M., Ph.D., University of Illinois.
- PAYNE, WILLIAM H. (1970).....Lecturer in Secondary Education
B.S., Virginia Union University; M.A., New York University.
- PEARSON, THOMAS R. (1968).....Coordinator of Financial Aid
B.S., U.S. Naval Academy; M.S., Purdue University.
- †PEDERSEN, KENNETH S. (1968).....Assistant Professor of Political Science
B.A., Whittier College; M.A., Ph.D. candidate, University of California, Los Angeles.
- PEHRSON, ROBERT B. (1969).....Assistant Professor of Secondary Education
B.A., M.A., Ph.D., University of Utah.
- PEIFFER, HERBERT C., JR. (1937).....Dean of Students; Professor of Psychology
A.B., University of California, Los Angeles; M.A., Ph.D., Stanford University.
- PEISNER, EARL F. (1961).....Coordinator of Counseling
B.A., Grinnell College; M.A., State University of Iowa; Ed.D., Oregon State College.
- PEMBERTON, LEROY A. (1955).....Professor of Information Systems
A.B., A.M., Colorado State College; Ed.D., University of California, Los Angeles.
- *PENDLETON, WADE C. (1969).....Assistant Professor of Anthropology
A.B., Ph.D., University of California.
- PENN, ROBERT (1960).....Professor of Psychology
A.B., M.A., San Diego State College; Ph.D., Carnegie Institute of Technology.
- PERKINS, WILLIAM A. (1955).....Professor of English
A.B., Ph.D., Stanford University.
- PERSON, GERALD A. (1957).....Professor of Secondary Education
B.A., Augsburg College; M.Ed., Ph.D., University of Minnesota.
- PETERS, LYNN H. (1959).....Professor of Management
B.A., LL.B., M.B.A., Ph.D., University of Wisconsin.
- †PETERSON, GARY L. (1963).....Professor of Geology
B.A., University of Colorado; M.S., Ph.D., University of Washington.

† On leave, spring 1970-71.

* On leave, fall 1970-71.

† On leave, year 1970-71.

- PETERSON, PATRICIA (1969).....Physician
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- PETERSON, TENOLD A. (1966).....Assistant Professor of Art
B.A., M.A., California State College, Long Beach.
- PETTEYS, MANVILLE R. (1957).....Coordinator of Extended Services;
Professor of Education
B.A., Willamette University; M.A., Ed.D., Stanford University.
- PFAFF, PAUL LEWIS (1931).....Professor of Speech Pathology and Audiology
A.B., Stanford University; M.A., Ph.D., University of Southern California.
- PHATAK, MOHAN V. (1970).....Lecturer in Economics
M.A., University of Poona, India; M.A., University of Rochester.
- PHELPS, LEROY N. (1966).....Associate Professor of Microbiology
B.Sc., Ohio State University; Ph.D., University of Southern California.
- PHILLIPS, GEORGE L. (1947).....Professor of English
A.B., Dartmouth College; M.A., Harvard University; Ph.D., Boston University.
- PHILLIPS, JOHNNIE L. (1965).....Assistant Education Resource Center Librarian
B.A., Loyola University, New Orleans; M.A.L.S., University of Illinois.
- PHILLIPS, WILLIAM D. (1970).....Assistant Professor of History
B.A., University of Mississippi; M.A., University of Tennessee; Ph.D., candidate, New York University.
- PHILLIPS, WILLIAM H. (1963).....Professor of Physical Education
A.B., M.A., Ed.D., University of California.
- PIERSON, ALBERT C. (1954).....Professor of Management
B.L.A.S., University of Illinois; M.B.A., Harvard University; Ph.D., Columbia University.
Public Accountant.
- PIFFARD, GUERARD (1956).....Professor of French
B.A., M.A., Colorado College; Ph.D., Stanford University; post-doctoral study, University of Strasbourg, France.
- PILCHER, ANN HARPER (Mrs. D. M.) (1965).....Associate Professor of Social Work
B.A., M.A., University of Wisconsin; M.S.W., Smith College.
- *PILCHER, DONALD M. (1966).....Associate Professor of Social Work
B.S., Kansas State University; M.S.W., University of Kansas.
- PINCETL, STANLEY J., JR. (1955).....Professor of History
B.A., M.A., Ph.D., University of California; Doctor of University, University of Paris (Sorbonne), France.
- PISERCHIO, ROBERT J. (1966).....Associate Professor of Physics
B.S., M.S., Ph.D., University of Arizona.
- *PLATZ, MARVIN H. (1955).....Coordinator of Summer Sessions; Professor of Education
B.S., Northeast Missouri State Teachers College; M.Ed., Ed.D., University of Missouri.
- PLOTNIK, ROD (1970).....Assistant Professor of Psychology
B.A., St. John's College; M.S., University of Miami; Ph.D., University of Florida.
- PLYMALE, HARRY H. (1962).....Associate Professor of Zoology
B.S., D.V.M., Michigan State University.
- POLICH, JOHN L. (1969).....Assistant Professor of History, Imperial Valley
B.S., Loyola University; M.S., M.A., University of Southern California; Ph.D., University of New Mexico.
- POLLACK, DONALD (1968).....Assistant Professor of Psychology
B.S., Massachusetts Institute of Technology; M.A., Ph.D., University of California, Los Angeles.
- POLLOCK, JOHN C. (1970).....Assistant Professor of Political Science
B.A., Swarthmore College; M.I.P.A., Syracuse University; Ph.D. candidate, Stanford University.
- POPP, DEAN O. (1969).....Assistant Professor of Economics
B.A., Willamette University; M.S., Ph.D., Purdue University.
- POROY, IBRAHIM I. (1967).....Associate Professor of Economics
Licence in Economics, Istanbul University; M.A., Ph.D., University of California.
- PORTMAN, PAULINE E. (1968).....Assistant Lower Division Librarian
B.A., M.L.S., University of Washington.
- POSNER, WALTER H. (1962).....Assistant Catalog Librarian
B.S., Utah State Agricultural College; M.A., Western State College, Colorado; M.A. in L.S., University of Denver.
- POUQUET, JEAN (1970).....Visiting Professor of Geography and History
Licence, Master, Agregation, Ph.D., University of Paris.
- POVENMIRE, E. KINGSLEY (1946).....Professor of Drama
B.S., Ohio State University; M.F.A., Yale University.
- POWELL, DON W. (1953).....Professor of Drama
B.S., Kirksville State Teachers College; M.F.A., State University of Iowa.
- POWERS, MICHAEL E., Captain, USAF (1969).....Assistant Professor of Aerospace Studies
B.S., University of Puget Sound; B.S., Pennsylvania State University.

† On leave, year 1970-71.

* On leave, fall 1970-71.

- PRESTON, DUDLEY A. (1948).....Associate Professor of Botany
B.S., Washington State College; M.S., Ph.D., University of Minnesota.
- PRICE, KARL F. (1970).....Assistant Professor of Management
B.S., Drexel Institute of Technology; Ph.D., University of Pennsylvania.
- PRICE, QUENTON L. E. (1966).....Associate Professor of Home Economics
B.A., La Sierra College; M.A., California Western University; Ph.D., United States International University.
- PRICHETT, GORDON D. (1970).....Assistant Professor of Mathematics
B.A., Williams College; M.A., Ph.D., University of Wisconsin.
- PROUTY, HELEN L. (1950).....Professor of Secondary Education
B.S., University of Nebraska; M.A., Ph.D., University of California.
- PRYDE, PHILIP R. (1969).....Assistant Professor of Geography
B.A., Amherst College; M.A., Ph.D., University of Washington.
- PSOMAS, THEMISTOCLES (1957).....Associate Professor of Psychology
B.A., University of Southern California; Ph.D., University of California.
- PTACEK, ANTON D. (1965).....Associate Professor of Geology
B.S., University of Wisconsin; M.S., Ph.D., University of Washington.
- PURCELL, HAROLD I. (1966).....Assistant Professor of Accounting
B.S., University of Arizona; M.S., San Diego State College. Certified Public Accountant.
- QUASTLER, IMRE E. (1967).....Assistant Professor of Geography
B.A., Wayne State University; M.A., Northwestern University; Ph.D., University of Kansas.
- QUIETT, FREDRICK T. (1957).....Professor of Civil Engineering
Geol.E., M.S., Colorado School of Mines. Registered Professional Engineer (Mining). Registered Geologist.
- RADER, DANIEL L. (1954).....Professor of History
A.B., M.A., Ph.D., University of California.
- RADLOW, ROBERT (1968).....Professor of Psychology
B.S., City College of New York; M.S., Ph.D., Pennsylvania State University.
- RAGEN, KATHERINE M. (1947).....Professor of History
A.B., William Penn College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.
- RAO, M. V. RAMA (1957).....Professor of Mechanical Engineering
B.S.M.E., University of Madras, India; M.S.M.E., Ph.D., University of Illinois.
- *RATTY, FRANK J. (1954).....Professor of Biology
A.B., San Diego State College; M.S., Ph.D., University of Utah.
- RAUBER, DONALD F. (1967).....Associate Professor of English
B.A., St. Mary's College, Calif.; M.A., Ph.D., University of Oregon.
- RAY, EUGENE (1969).....Assistant Professor of Art
M.F.A., Tulane University.
- RAY, ROBERT C. (1961).....Director of Health Services
B.S. (Medical), University of North Dakota; M.D., Northwestern University.
- RAYLE, DAVID L. (1970).....Assistant Professor of Botany
B.A., Ph.D., University of California, Santa Barbara.
- RAYMER, PAUL H. (1970) (Under contract 1969-70).....Assistant Professor of Social Work
A.B., M.S.W., doctoral candidate, University of California.
- REDDING, MARY E. (Mrs. R. W.) (1967).....Associate Professor of English
B.A., Wisconsin State University; M.A., Ph.D., University of Wisconsin.
- REDDING, ROBERT W. (1966).....Assistant Professor of English
A.B., Los Angeles State College; M.A., University of California; Ph.D., University of New Mexico.
- REED, THELMA R. (Mrs. D.) (1966).....Associate Professor of Home Economics
B.S., M.A., George Peabody College; Ph.D., Texas Woman's University.
- †REEL, JANE E. (1958).....Assistant Professor of Elementary Education
A.B., M.A., San Diego State College.
- REHFUSS, DONALD E. (1962).....Associate Professor of Physics
B.A., Reed College; M.A., Ph.D., University of Oregon.
- REICHERT, KURT (1970).....Dean, School of Social Work; Professor of Social Work
B.A., Carleton College; M.A., University of Chicago; Ph.D., University of Minnesota.
- REINTS, WILLIAM W. (1966).....Associate Professor of Finance
B.S., M.B.A., Oklahoma State University; D.B.A., University of Washington.
- RETSON, JAMES N. (1968).....Associate Professor of Elementary Education
B.S., Lawrence College; M.A., University of Chicago; Ed.D., Arizona State University.
- REZNIKOFF, SIMON (1956).....Professor of Business Law
B.A., University of Missouri; J.D., Columbia University.
- RICE, ERIC D. (1969).....Assistant Professor of Education, Imperial Valley
B.S., St. Mary's College; M.A., San Diego State College; Ed.D. candidate, University of California, Los Angeles.
- RICHARDS, STEVEN A. (1969).....Assistant Professor of Psychology
B.A., Brooklyn College; Ph.D., University of Tennessee.

* On leave, fall 1970-71.

† In leave, year 1970-71.

- RICHARDS, TERI L. (1970).....Lecturer in Nursing
B.S., University of Colorado, School of Nursing, Denver; M.S., University of California, San Francisco.
- RICHARDSON, ROBERT W. (1939, except 1946-48).....Professor of Geography
A.B., Ph.D., University of California.
- RICHARDSON, WILLIAM H. (1963).....Professor of Chemistry
B.S., University of California, Los Angeles; Ph.D., University of Illinois.
- RICHMAN, PAUL T. (1969).....Assistant Professor of Secondary Education
B.S., Allegheny College; M.Ed., Temple University; Ed.D., Stanford University.
- RIDOUT, LIONEL U. (1946, except 1949-50).....Professor of History
A.B., San Diego State College; M.A., University of California; Ph.D., University of Southern California.
- RIEDMAN, RICHARD M. (1962).....Professor of Speech Pathology and Audiology
B.A., M.A., University of Redlands; Ph.D., University of Pittsburgh.
- RIGGS, LESTER G. (1950, except 1951-52).....Professor of Mathematics
B.S., University of Illinois; M.S., Syracuse University; Ph.D., Northwestern University.
- RIKKERS, RICHARD A. (1968).....Assistant Professor of Social Work
A.B., San Diego State College; M.S.W., University of California, Los Angeles.
- RINEHART, ROBERT R. (1964).....Professor of Biology
A.B., San Diego State College; Ph.D., University of Texas.
- RING, MOREY A. (1962).....Professor of Chemistry
B.S., University of California, Los Angeles; Ph.D., University of Washington.
- RIVAS, ANTHONY R. (1970).....Tutorial Coordinator, Education Opportunities Program
A.B. candidate, San Diego State College.
- RIXMAN, EUNICE E. (1960).....Associate Professor of Elementary Education
B.M., Illinois Wesleyan University; M.M., University of Michigan; D.M.A., University of Southern California.
- ROBERTS, ELLIS E. (1949).....Professor of Geology
B.S., Michigan College of Mining and Technology; M.S., California Institute of Technology; Ph.D., Stanford University.
- ROBERTSON, FRANK O. (1953).....Director of Health Services
B.S., M.S., B.S. (Medicine), University of North Dakota; M.D., University of Oregon Medical School.
- ROBINSON, DUDLEY HUGH (1928).....Professor of Chemistry
B.S., Louisiana State University; M.S., State University of Iowa; Ph.D., University of Southern California. Registered Chemical Engineer.
- ROBINSON, LAURIE R. (Mrs.) (1960).....Acquisition Librarian
B.A., Texas Western College; M.A., University of Denver.
- RODIN, MIRIAM J. (Mrs. B.) (1966).....Associate Professor of Psychology
B.A., M.A., Ph.D., University of California, Los Angeles.
- RODNEY, JOSEPH A. (1957).....Director, Imperial Valley Campus; Professor of Education
A.B., M.A., San Diego State College; Ed.D., University of Southern California.
- ROEDER, STEPHEN B. W. (1968).....Assistant Professor of Physics
B.A., Dartmouth College; Ph.D., University of Wisconsin.
- ROEMMICH, HERMAN (1958).....Test Officer
B.A., Jamestown College; M.A., University of Colorado; M.A., Teachers College, Columbia University; Ph.D., University of Washington.
- ROGERS, JOHN J. (1963).....Associate Professor of Art
B.S., M.S., University of Wisconsin.
- ROGERS, SPENCER LEE (1930).....Professor of Anthropology
A.B., San Diego State College; M.A., Claremont College; Ph.D., University of Southern California.
- ROGERS, WILLIAM N., II (1968).....Assistant Professor of English
B.A., Stanford University; M.A., Ph.D. candidate, University of California.
- ROHFLEISCH, KRAMER J. (1947).....Professor of History
A.B., M.A., Ph.D., University of California.
- ROHFLEISCH, MARJORIE C. (Mrs. K.) (1966).....Assistant Professor of Music
B.A., Pomona College; M.A., San Diego State College.
- ROHRL, VIVIAN J. (Mrs. H.) (1965).....Assistant Professor of Anthropology
B.A., M.A., University of Chicago; Ph.D., University of Minnesota.
- * ROMANO, ALBERT (1963).....Associate Professor of Mathematics
B.A., Brooklyn College; M.A., Washington University; Ph.D., Virginia Polytechnic Institute.
- ROSEN, SYDNEY H. (1968).....Assistant Professor of History
Ph.B., M.A., Ph.D. candidate, University of Chicago.
- ROSENSTEIN, LEON (1969).....Lecturer in Philosophy
A.B., Ph.D. candidate, Columbia University.
- ROSS, JAMES E. (1969).....Assistant Professor of Mathematics
B.M., Ph.D., University of Minnesota.
- ROSS, RAMON R. (1961).....Professor of Elementary Education
B.A., Central Washington College; M.Ed., University of Idaho; Ed.D., University of Oregon.

† On leave, year 1970-71.

* On leave, fall 1970-71.

- ROST, NORMAN (1951).....Professor of Music
B.M., M.M., University of Michigan.
- ROTHER, JAMES (1969).....Assistant Professor of English
B.A., M.A., McGill University; Ph.D. candidate, University of California, Santa Barbara.
- ROUNTREE, JUDITH N. (Mrs. N. T.) (1969).....Assistant Professor of Physical Education
B.S., Auburn University; M.S., West Virginia University.
- ROWE, ROBERT D. (1946).....Professor of Chemistry
A.B., Engineer in Engineering Chemistry, Ph.D., Stanford University.
- ROWLAND, MONROE K. (1960).....Associate Professor of Elementary Education
B.S., M.A., Ph.D., University of Michigan.
- ROY, ELSIE L. (Mrs. O. A.) (1959).....Assistant Catalog Librarian
A.B., San Diego State College.
- RUETTEN, RICHARD T. (1960).....Professor of History
B.A., Colorado State College; M.A., Ph.D., University of Oregon.
- RUJA, HARRY (1947).....Professor of Philosophy
A.B., University of California at Los Angeles; M.A., University of Chicago; M.A., San Diego State College; Ph.D., Princeton University.
- ‡RUMBAUGH, DUANE M. (1954).....Professor of Psychology
A.B., University of Dubuque; M.A., Kent State University; Ph.D., University of Colorado.
- SALERNO, M. CONSTANCE (Mrs. V.) (1964).....Associate Professor of Nursing
B.S., M.S., University of San Diego, College for Women; M.S., University of California, Los Angeles.
- SALPER, ROBERTA L. (1970).....Lecturer in Women's Studies
B.A., Boston University; A.M., Ph.D., Harvard University.
- SALTZ, DANIEL (1959).....Professor of Mathematics
B.A., B.S., University of Chicago; M.S., Ph.D., Northwestern University.
- SAMOVAR, LARRY A. (1963).....Professor of Speech Communication
B.A., Los Angeles State College; M.S., Ph.D., Purdue University.
- SAMPLES, HOWELL GORDON, JR. (1950).....Reference Librarian
A.B., University of Georgia; B.S. in L.S., George Peabody College for Teachers.
- SAND, MARGARET C. (Mrs. C. A.) (1964).....Associate Professor of Psychology
A.B., University of Colorado; M.A., Ph.D., Columbia University.
- SANDELIN, M. LEE (Mrs. G.) (1968).....Gifts and Exchange Librarian
B.A., San Francisco State College; M.L.S., University of California.
- SANDERLIN, GEORGE W. (1955).....Professor of English
B.A., American University; Ph.D., Johns Hopkins University.
- SANDERS, FREDERICK C. (1967).....Assistant Professor of Speech Communication
A.B., M.A., San Diego State College.
- SANDERS, GERALD P. (1968).....Lecturer in Biology
A.B., San Diego State College; M.S. candidate, University of Pennsylvania.
- SANDSTROM, GLENN A. (1956).....Professor of English
B.A., M.A., Washington State College; Ph.D., University of Illinois.
- SANNER, RICHARD L. (1965).....Assistant Director of Audio-Visual Services
B.S., Iowa State University; M.A., University of Iowa; Ed.D., Arizona State University.
- SANTALO, JOAQUIN (1968).....Assistant Professor of Spanish
B.A., San Diego State College; M.A., Ph.D., University of Arizona.
- SANTANGELO, GENNARO A. (1967).....Associate Professor of English
B.S., Fordham College; M.A., Ph.D., University of North Carolina.
- SARDINAS, MARIA A. (1968).....Assistant Professor of Social Work
A.B., B.A., Colegio Nuestra Senora De Lourdes, Cuba; M.T., Barnes Hospital School of Medical Technologists; M.S.W., New York University.
- *SARFATT, JACK (1968).....Assistant Professor of Physics
B.A., Cornell University; M.S., University of California, San Diego; Ph.D., University of California, Riverside.
- SARFATT, ROBERTA F. (Mrs. J.) (1969).....Assistant Professor of English
B.A., Cornell University; Ph.D., University of California, San Diego.
- SATTLER, JEROME M. (1965).....Associate Professor of Psychology
A.B., City College of New York; M.A., Ph.D., University of Kansas.
- SAVAGE, EDITH J. (Mrs. P.) (1960).....Professor of Music
B.S., University of Missouri; M.S., Texas College of Arts and Industries; Ed.D., University of Colorado.
- SAVVAS, MINAS (1968).....Assistant Professor of English
B.A., M.A., University of Illinois; Ph.D. candidate, University of California, Santa Barbara.
- SCHABER, STEVEN C. (1967).....Associate Professor of German
A.B., San Diego State College; M.A., Ph.D., Princeton University.
- SCHAPIRO, HARRIETTE C. (1966).....Associate Professor of Biology
B.S., University of Miami; M.A., Brandeis University; Ph.D., University of Miami.
- SCHATZ, ARTHUR W. (1963).....Associate Professor of History
B.A., St. Mary's College, California; M.A., Ph.D., University of Oregon.

‡ On leave, year 1970-71.

* On leave, fall 1970-71.

- SCHECK, DENNIS C. (1968).....Assistant Professor of Sociology
B.A., MacMurray College; M.S., Ph.D., Purdue University.
- SCHIFF, MAURICE (1969).....Lecturer in Speech Pathology and Audiology
M.D., Boston University; M.Sc., University of Pennsylvania.
- SCHMIDT, JOHN L. (1957).....Professor of Counselor Education
B.S., Lawrence College; M.S., Ph.D., University of Wisconsin.
- †SCHMIDT, PATRICIA V. (Mrs. D.) (1966).....Assistant Professor of Nursing
B.S., College of St. Teresa, Minnesota; M.S., Marquette University.
- SCHMIER, WALTER D. (1967).....Assistant Professor of Business Law
A.B., J.D., Wayne State University.
- SCHOPP, JOHN D. (1962).....Professor of Astronomy
B.S., Northwestern University; Ph.D., Princeton University.
- SCHRUPP, MANFRED H. (1948).....Dean, School of Education; Professor of Education
B.S., M.Ed., Ph.D., University of Minnesota.
- SCHULMAN, CAROL A. (Mrs. H. L.) (1970).....Assistant Professor of Psychology
B.A., M.Sc., Ph.D., Rutgers University.
- SCHULTE, RICHARD H. (1965).....Associate Professor of Psychology
A.B., Michigan State University; M.A., Ph.D., University of Illinois.
- SCHULTZE, WILLIAM A. (1968).....Associate Professor of Political Science
B.A., Nebraska Wesleyan University; M.A., Ph.D., Rutgers University.
- SCHULZE, ROLF H. K. (1969).....Assistant Professor of Sociology
B.A., University of North Dakota; M.A., Ph.D., Michigan State University.
- *SCHUNERT, JIM R. (1948).....Professor of Secondary Education
B.S., M.A., Ph.D., University of Minnesota.
- SCHUPP, CHERIE E. (Mrs. W.) (1965).....Assistant Professor of Home Economics
B.S., Texas College of Arts and Industries; M.Ed., Southwest Texas State College; Ph.D., United States International University.
- SCHUTTE, WILLIAM H. (1947).....Professor of Physical Education
B.S., University of Idaho; M.S., University of Southern California.
- SCHWAB, FREDERICK E., Lt. Col., USAF (1969).....Professor of Aerospace Studies
B.S., University of Omaha.
- SCORGIE, MICHAEL E. (1970).....Visiting Professor of Accounting
B.Com., University of Melbourne, Australia.
- SCOTT, FRANK L. (1947).....Professor of Physical Education
A.B., Grinnell College; M.A., Ph.D., University of Michigan.
- SEARGEANT, SALLIE (1968).....Lecturer in Social Work
B.A., University of Arizona; M.S.W., Washington University.
- SEBOLD, FREDERICK D. (1969).....Assistant Professor of Economics
B.A., Saint Vincent College; M.A., Ph.D., Boston College.
- SEGADE, GUSTAV V. (1967).....Assistant Professor of Spanish
B.A., M.A., Ph.D. candidate, University of Arizona.
- SELDER, DENNIS J. (1968).....Assistant Professor of Physical Education
B.P.E., M.P.E., University of British Columbia; Ph.D., Ohio State University.
- SELF, WILLIAM M. (1970).....Assistant Professor of Mathematics
B.A., University of Kansas; M.A., Ph.D., University of Wisconsin.
- SELMAN, HUNTON D. (1946).....Professor of Drama
B.S., Purdue University; M.S., University of Arizona; additional graduate study, Yale University.
- SENDER, FLORENCE H. (Mrs.) (1964).....Associate Professor of Spanish
B.A., Franklin College, Indiana; M.A. and additional graduate study, Northwestern University.
- SERIGHT, ORIN D. (1967).....Associate Professor of English
B.A., University of Colorado; M.A., University of Arkansas; Ph.D., Indiana University.
- SERVEY, RICHARD E. (1961).....Professor of Elementary Education
A.B., A.M., University of California, Los Angeles; Ph.D., University of Southern California.
- SHARKEY, GERALD K. (1956).....Professor of Marketing
A.B., St. John's University; M.S., Georgetown University; Ph.D., University of Southern California.
- SHARPE, BRYAN P. (1968).....Assistant Professor of Anthropology
B.A., M.A., Ph.D. candidate, University of California.
- SHARTS, CLAY M. (1962).....Professor of Chemistry
B.S., University of California; Ph.D., California Institute of Technology.
- SHAW, LARRY J. (1968).....Assistant Professor of Secondary Education
B.A., Sioux Falls College; M.Ed., Ed.D., University of Nebraska.
- SHAW, PETER W. (1955).....Professor of Mathematics
B.A., M.A., University of Toronto; Ph.D., Stanford University.
- SHELDON, JOHN M. (1962).....Associate Professor of Music
B.Sc., University of North Dakota; M.A., Arizona State University; Ed.D., University of Southern California.

† On leave, year 1970-71.

* On leave, fall 1970-71.

- SHEPARD, DAVID C. (1956).....Professor of Biology
A.B., Ph.D., Stanford University.
- SHEPOSH, JOHN P. (1968).....Associate Professor of Psychology
A.B., M.A., Ph.D., Wayne State University.
- SHERR, STEVEN D. (1969).....Counselor
B.A., City College of New York; M.A., Temple University; Ph.D., University of Missouri.
- SHERRARD, WILLIAM R. (1968).....Associate Professor of Management
B.A., M.B.A., D.B.A., University of Washington.
- SHIDELER, JAMES H., JR. (1966).....Assistant Professor of Physical Science
B.S., Oregon State College; M.S., University of Washington.
- SHIELDS, ALLAN E. (1949, except 1969-70).....Professor of Philosophy
A.B., University of California; M.A., Ph.D., University of Southern California.
- SHIRA, DONALD W., JR. (1958).....Reference Librarian
B.A., University of Redlands; M.A.L.S., George Peabody College.
- SHORT, DONALD R., JR. (1969).....Assistant Professor of Mathematics
B.A., University of California, Los Angeles; Ph.D., Oregon State University.
- SHOUSE, CLAUDE F. (1946).....Professor of English
A.B., Georgetown College; M.A., University of Kentucky; Ph.D., University of Southern California.
- SHULL, CHARLES M., JR. (1969).....Associate Professor of Physical Science
B.Chem., University of Tulsa; M.A., Ph.D., University of Utah.
- SHUTLER, MARY E. (Mrs. R.) (1967).....Associate Professor of Anthropology
A.B., University of California; M.A., Ph.D., University of Arizona.
- SHUTT, JERRY L. (1970).....Assistant Professor of Finance
B.S., Indiana University; M.A.S., University of Michigan; D.B.A. candidate, Indiana University.
- SHUTTS, WILLIAM H. (1958).....Professor of Aerospace Engineering
B.S.M.E., M.S.A.E., University of Colorado; Ph.D., University of Texas.
- SIMONS, JEROLD J. (1967).....Associate Professor of Industrial Arts
B.A., San Jose State College; M.A., California State College at Long Beach; Ed.D., Texas A & M University.
- SIMPSON, DOROTHY V. (Mrs.) (1970).....Activities Adviser
A.B., Talladega College.
- SINGER, ARTHUR, JR. (1959).....Professor of Special Education
B.S., Milwaukee State Teachers College; M.S., Ph.D., University of Wisconsin.
- SKAAR, DONALD L. (1960).....Associate Professor of Electrical and Electronic Engineering
B.E.E., University of Minnesota; M.S., Oregon State University. Registered Professional Engineer.
- SKOLIL, LESTER L. (1951).....Professor of Physics
A.B., Doane College; M.A., University of Nebraska; Ph.D., University of California; D.Sc., Doane College, Nebraska.
- SLOAN, WILLIAM C. (1961).....Professor of Biology
B.S., M.S., Ph.D., University of Florida.
- SMITH, ALAN C. (1963).....Associate Professor of Education, Imperial Valley
B.A., M.A., Colorado State College; Ed.D., University of Oregon.
- SMITH, BEVERLY A. (1968).....Assistant Professor of Physical Education
B.S., West Virginia Wesleyan College; M.S., Ohio University.
- †SMITH, CHARLES D., JR. (1967).....Associate Professor of History
A.B., Williams College; M.A., Harvard University; Ph.D., University of Michigan.
- SMITH, CHARLES R. (1969).....Assistant Professor of Insurance
B.S., M.S., Kansas State University; doctoral candidate, Pennsylvania State University.
- SMITH, CLIFFORD L. (1970).....Lecturer in Art
B.A., San Francisco State College.
- SMITH, CRAIG R. (1969).....Assistant Professor of Speech Communication
B.A., University of California, Santa Barbara; M.A., City University of New York, Queens College; Ph.D., Pennsylvania State University.
- SMITH, HAYDEN R. (1957).....Professor of Secondary Education
B.A., Albion College; M.A., Ph.D., University of Michigan.
- SMITH, J. DAYTON (1955).....Professor of Music
A.B., B.M., St. Olaf College; M.M., University of Nebraska; additional graduate study at Florida State University.
- SMITH, JIMMIE B. (1968).....Associate Professor of Mathematics
B.A., B.S., Rice University; M.A. Ph.D., University of Arizona.
- SMITH, JOHN R. (1957).....Associate Professor of Psychology
B.A., Occidental College; M.A., Ph.D., University of California, Los Angeles.
- SMITH, LARRY E. (1969).....Lecturer in Art
A.B., University of Chattanooga; M.A.A., Montana State University.
- SMITH, LOUIS E., JR. (1946).....Professor of Physics
A.B., San Diego State College; Ph.D., University of Washington.

- SMITH, NEWTON B. (1954) Professor of Mathematics
B.A., Reed College; M.A., Oregon State College; Ph.D., Iowa State College.
- SMITH, RAY T., JR. (1964) Associate Professor of History
B.A., Southern Methodist University; M.A., Ph.D., University of California.
- SMITH, ROBERT D., JR. (1963) Professor of Secondary Education
B.A., M.A., Arizona State University; Ph.D., Northwestern University.
- SNIDER, MERVIN S. (1953) Professor of Music
B.A., Pomona College; M.A., Eastman School of Music; additional graduate study at Northwestern University and Claremont Graduate School.
- SNODGRASS, HERSCHEL R. (1967) Professor of Physics
B.A., M.A., University of New Mexico; Ph.D., University of California.
- SNUDDEN, LESLIE W. (1959) Professor of Accounting
B.S., Northwestern University; M.B.A., D.B.A., University of Southern California. Certified Public Accountant.
- SNYDER, WILLIAM S. (1960) Professor of Philosophy
B.A., Temple University; Ph.D., Princeton University.
- SOLBUE, GARY A. (1964) Activities Adviser
A.B., San Diego State College.
- *SOLDNER, HELMUT K. (1969) Assistant Professor of Marketing
B.S., Martin-Beahm-Oberrealschule, Nuremberg; M.B.A., D.B.A., University of Erlangen, Nuremberg.
- SOMERVILLE, ROSE M. (Mrs. J.) (1967) Associate Professor of Home Economics
B.A., Barnard College, Columbia University; M.A., Columbia University; Ed.D., Teachers College, Columbia University.
- SONEK, ALEXANDER, JR. (1968) Assistant Professor of Anthropology
B.A., City College of New York; M.A., Ph.D., University of Oregon.
- SOPER, JOANN P. (Mrs. M. E.) (1968) Reference Librarian
B.A., Earlham College; M.L.S., University of Rhode Island.
- SORENSEN, GEORGE W. (1967) Associate Professor of Journalism
A.B., Antioch College, Ohio; M.S., Boston University; Ph.D., University of Iowa.
- SORENSEN, GEORGE N. (1946) Professor of Art
A.B., San Diego State College; M.A., University of Southern California; additional graduate study at the Universities of California and Minnesota.
- SOROCHAN, WALTER D. (1969) Assistant Professor of Health Science and Safety
B.P.E., University of British Columbia; M.Sc., University of Oregon; H.S.D., Indiana University.
- SOULE, JOHN W. (1970) Visiting Lecturer in Political Science
B.A., M.A., Michigan State University; Ph.D., University of Kentucky.
- SPANGLER, JOHN A. (1946) Professor of Chemistry
A.B., Ph.D., West Virginia University.
- SPAULDING, WILLIAM E., JR. (1970) Assistant Professor of Information Systems
B.A., M.B.A., Stanford University; Ph.D., candidate, Purdue University.
- SPENCER, MARJORIE J. (Mrs. T.) (1969) Assistant Professor of Art, Imperial Valley
B.S., Texas Woman's University; M.A., George Peabody College for Teachers.
- SPEVAK, JOSEPH E. (1969) Assistant Professor of Journalism
B.S., Kent State University; M.S., Boston University; Ph.D. candidate, University of Iowa.
- SPONSELLER, DORIS M. (1965) Assistant Professor of Information Systems
B.S., Ohio University; M.A., New York University.
- SPRINGER, ARTHUR (1968) Assistant Professor of Physical Science
B.S., Illinois Institute of Technology; Ph.D., University of California.
- SRBICH, ALEXANDER L. (1959) Professor of Management
B.S., Officers Technical College, Yugoslavia; M.A., University of Cologne, Germany; B.S.E., M.B.A., University of Michigan; Ph.D., University of Minnesota. Registered Professional Industrial Engineer.
- STANIFORD, PHILIP S. (1967) Assistant Professor of Anthropology
B.A., University of California, Santa Barbara; M.A., University of Hawaii; Ph.D., London School of Economics and Political Science.
- STARR, RAYMOND G. (1964) Associate Professor of History
B.A., Ph.D., University of Texas.
- STARSKY, MORRIS J. (1970) Lecturer in Philosophy
B.A., University of Rochester; M.A., Ph.D., University of Michigan.
- STAUTLAND, SIGURD (1966) Associate Professor of Secondary Education
B.Fag., University of Oslo, Norway; M.A., College of the Pacific; Ph.D., Stanford University.
- §STECKBAUER, MARK J. (1967) Associate Professor of Secondary Education
A.B., Catholic University of America; M.A., San Diego State College; Ed.D., University of California, Los Angeles.
- STEELE, RICHARD W. (1967) Associate Professor of History
B.A., Queens College; M.A., University of Wisconsin; M.A., Ph.D., Johns Hopkins University.

* On leave, fall 1970-71.

§ Assigned duty in Brazil, year 1970-71.

- STEENBERGEN, JAMES F. (1970).....Assistant Professor of Microbiology
B.S., Western Kentucky University; M.S., Ph.D., Indiana University.
- STEINHORST, RICHARD K. (1970).....Assistant Professor of Management
B.S., University of Southwestern Louisiana; M.S., Ph.D. candidate, Colorado State University.
- STEVENS, WALTER R. (1956).....Professor of Psychology
A.B., Park College; M.A., Ph.D., Michigan State University.
- *STEPHENSON, CLARENCE E. (1963).....Professor of Drama
B.A., M.A., Ph.D., University of Michigan.
- STEPHENSON, JOHN S., III (1969).....Assistant Professor of Sociology
B.A., Boston University; M.A., University of Denver; Ph.D. candidate, Ohio State University.
- STEWART, CHARLES J. (1955).....Professor of Chemistry
A.B., San Diego State College; M.S., Ph.D., Oregon State College.
- †STEWART, PAUL E. (1953).....Professor of Physical Science
A.B., College of Wooster; Ph.D., Stanford University.
- STIEHL, HARRY C. (1969).....Assistant Professor of English
B.A., University of Texas; M.A., University of California; Ph.D., University of Texas.
- STITES, FRANCIS N. (1968).....Assistant Professor of History
B.A., Marian College; M.A., Ph.D., Indiana University.
- STONE, HAMILTON L. (1947).....Associate Professor of Mechanical Engineering
B.S., U.S. Naval Academy; graduate study at U.S. Naval Postgraduate School. Registered Mechanical Engineer.
- STONE, SANFORD H. (1956).....Professor of Civil Engineering
B.S.E., M.S.E., University of Michigan; M.S., University of Illinois. Registered Professional Civil Engineer.
- STORY, WILLIAM E. (1968).....Assistant Professor of Education, Imperial Valley
A.B., Sacramento State College; M.A., University of Nevada; Ph.D., University of Arizona.
- STOUGH, MORROW F. (1950, except 1966-71).....Professor of Elementary Education
A.B., Wittenberg University; M.A., University of Pennsylvania; Ph.D., University of California.
- STRAND, MARGUERITE R. (Mrs. R. L.) (1955).....Counselor; Professor of Secondary Education
A.B., M.A., Florida State University; Ph.D., University of Washington.
- STRATTON, FRANK E. (1966).....Associate Professor of Civil Engineering
B.S., San Diego State College; M.S., Ph.D., Stanford University.
- STRAUB, LURA LYNN (1948).....Professor of Information Systems
A.B., Jamestown College; M.C.S., Indiana University; additional graduate study, Universities of Wyoming, Denver and Colorado.
- STROM, DAVID W. (1968).....Associate Professor of Elementary Education
B.A., M.A., Ed.D., Wayne State University.
- STRONG, DOUGLAS H. (1964).....Associate Professor of History
B.A., M.A., University of California; Ph.D., Syracuse University.
- STUART, ROBERT J. (1969).....Assistant Professor of Electrical and Electronic Engineering
B.S., Massachusetts Institute of Technology; M.S., Ph.D., University of California, Los Angeles.
- STUMPF, JACK E. A. (1965).....Professor of Social Work
B.S., George Williams College, Chicago; M.S.W., University of Southern California; Ph.D., Brandeis University.
- STUTZ, FREDERICK P. (1970).....Assistant Professor of Geography
B.A., Valparaiso University; M.S., Northwestern University; Ph.D., Michigan State University.
- SUCEC, ANTHONY A. (1967).....Associate Professor of Physical Education
A.B., M.A., San Diego State College; Ed.D., University of California.
- SULLIVAN, EDWARD D. S. (1967).....Assistant Professor of English
B.A., University of Santa Clara; M.A., Ph.D., University of California, Santa Barbara.
- SUMMERFIELD, JOHN D. (1970).....Educational Television Station Manager
B.F.A., M.A., University of Texas.
- SUTHERLAND, JON N. (1967).....Assistant Professor of History
A.B., San Diego State College; Ph.D., University of California, Los Angeles.
- SWANSON, ROBERT W. (1968).....Manager, ADP Services
B.S., Columbia University.
- SWIFT, C. SHUFORD (1968).....Activities Adviser
B.S.E.E., U. S. Naval Academy; M.S.E.E., U. S. Naval Postgraduate School; additional graduate study, San Diego State College.
- SWIGGERT, JEAN D. (1946).....Professor of Art
A.B., San Diego State College; M.F.A., University of Southern California; additional graduate study at Claremont College.
- SZABO, ANDREW (1955).....Reference Consultant and Collection Development Librarian
M.S. in L.S., Drexel Institute of Technology; Ph.D., University of Pecs, Hungary.
- TAFT, SHIRLEY O. (Mrs.) (1969).....Assistant Professor of English
B.A., University of London; M.A., Ph.D. candidate, State University of New York at Binghamton.

* On leave, fall 1970-71.

† On leave, year 1970-71.

- TALAMANTES, FLORENCE I. (1962).....Assistant Professor of Spanish
B.A., Mount Union College, Ohio; M.A., Ph.D., University of Cincinnati.
- TALBERT, FREDDIE D. (1968).....Assistant Professor of Astronomy
B.A., Ph.D., University of Texas.
- TANAKA, YOSHIO (1965).....Associate Professor of German
LL.B., Tokyo University; B.A., M.A., Ph.D., University of California, Los Angeles.
- TANZER, JOANN L. (Mrs. J. L.) (1956).....Professor of Art
B.A., M.A., Michigan State University; Ed.D., Teacher's College, Columbia University.
- TAYLOR, HAWLEY C., JR. (1964).....Associate Professor of English
A.B., Reed College, Oregon; Ph.D., University of Washington.
- TAYLOR, JAMES W. (1950).....Professor of Geography
A.B., Northwestern State College; M.A., Ph.D., Louisiana State University.
- TAYLOR, KENNETH M. (1949).....Professor of Biology
A.B., M.A., Ph.D., University of California, Los Angeles.
- TEASDALE, JOHN G. (1956).....Professor of Physics
A.B., Ph.D., University of California, Los Angeles.
- †TEBOR, IRVING B. (1957).....Professor of Social Work
B.S., Northern Illinois State Teachers College; M.A., University of Chicago; Ph.D., Oregon State College.
- TEMPLETON, GENE A. (1970).....Assistant Professor of Athletics
B.S., University of Texas; M.S., Ph.D., University of New Mexico.
- TEMPLIN, JACQUES D. (1962).....Professor of Physics
A.B., University of California; M.A., Ph.D., University of California, Los Angeles.
- TERRELL, LOUIS M. (1969).....Assistant Professor of Political Science
B.A., Williams College; M.A., Ph.D., Stanford University.
- TERRY, WILLIAM L. (1946).....Professor of Physical Education
A.B., Western Kentucky Teachers College; M.S., Indiana University; Ed.D., Columbia University.
- THIEL, DONALD W. (1957).....Professor of Industrial Arts
B.S., University of Nebraska; M.S., Stout State College; Ph.D., Ohio State University.
- THILE, EDMUND L. (1967).....Associate Professor of Speech Pathology and Audiology
A.B., San Diego State College; M.A., Ph.D., University of Southern California.
- THOMAS, ALICE E. (Mrs. H.) (1955).....Professor of Home Economics
B.S., Bethany College, Kansas; B.D., M.A., Columbia University; additional graduate study at Universities of California and Washington.
- THOMAS, BLAKEMORE E. (1956).....Professor of Geology
A.B., University of California; M.S., Ph.D., California Institute of Technology.
- THOMPSON, GORDON M. (1969).....Assistant Professor of Counselor Education
B.A., Muskingum College; B.D., Pittsburgh Theological Seminary; M.A., San Diego State College; Ph.D. candidate, Arizona State University.
- THOMPSON, WILLIS H., JR. (1967).....Assistant Professor of Physical Science
B.S., B.A., Stanford University; M.A., San Jose State College.
- †THRANE, JAMES R. (1966).....Assistant Professor of English
A.B., M.A., University of California, Los Angeles; Ph.D., Columbia University.
- THREET, RICHARD L. (1961).....Professor of Geology
B.S., B.A., M.A., University of Illinois; Ph.D., University of Washington.
- THWAITES, WILLIAM M. (1965).....Associate Professor of Biology
B.S., University of Wisconsin; M.S., Ph.D., University of Michigan.
- TIDWELL, JAMES N. (1947).....Professor of English
A.B., Simmons University; M.A., University of Oklahoma; Ph.D., Ohio State University.
- TILARO, MARIO (1968).....Assistant Professor of Information Systems
B.S., University of Akron; M.S., San Diego State College.
- TILKER, HARVEY A. (1970).....Assistant Professor of Psychology
B.B.A., The City University of New York, Bernard M. Baruch School of Business and Public Administration; Ph.D., Michigan State University.
- TMIN, MITCHELL E. (1969).....Assistant Professor of Biology
B.S., Carnegie Institute of Technology; M.S., San Diego State College; Ph.D. candidate, University of California, San Diego.
- TOLLEFSEN, DOROTHY J. (1946).....Professor of Physical Education
A.B., M.A., University of California.
- TOSSAS DE IRIZARRY, LEILA V. (1961).....Professor of Elementary Education
B.S., M.A., Ed.D., Teachers College, Columbia University.
- TOTMAN, JANE M. (Mrs.) (1970).....Assistant Professor of Social Work
A.B., Syracuse University; M.S.W., D.S.W., University of California.
- TOZER, LOWELL (1954).....Professor of English
A.B., University of Chicago; M.A., De Paul University; Ph.D., University of Minnesota.
- TREADWAY, GERALD H., JR. (1970).....Assistant Professor of Elementary Education
A.B., M.A., San Diego State College; Ed.D., University of Arizona.
- TRIMMER, RUSSELL L. (1955).....Professor of Secondary Education
A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.

† On leave, year 1970-71.

- TROXELL, EUGENE A. (1966).....Assistant Professor of Philosophy
A.B., Gonzaga University; M.A., Ph.D., University of Chicago.
- TUNBERG, JACQUELINE D. (Mrs. W. A.) (1966).....Assistant Professor of English
B.A., M.A., Ph.D., University of Southern California.
- †TURNER, MARJORIE S. (Mrs. M. B.) (1954).....Professor of Economics
B.A., M.A., Ph.D., University of Texas.
- †TURNER, MERLE B. (1950).....Professor of Psychology
A.B., Willamette University; M.A., Stanford University; Ph.D., University of Colorado.
- URISTA, ALBERTO H. (1970).....Instructor in Mexican-American Studies
A.B., San Diego State College.
- VAN BEEK, JOHANNES L. (1970).....Assistant Professor of Geography
Candidaats, Rijks University, The Netherlands; M.A., Louisiana State University; Drs., Rijks University, The Netherlands.
- VANDENBERG, PIETER A. (1969).....Assistant Professor of Finance
B.S., California State Polytechnic College, Kellogg-Voorhies; M.B.A., D.B.A., University of Southern California.
- VANDERBILT, KERMIT (1962).....Professor of English
B.A., Luther College, Iowa; M.A., Ph.D., University of Minnesota.
- VANDERWOOD, PAUL J. (1969).....Assistant Professor of History
B.A., Bethany College; M.A., Memphis State University; Ph.D., University of Texas.
- VAN DE WETERING, R. LEE (1960).....Professor of Mathematics
B.S., University of Washington; Ed.M., Western Washington College of Education; Ph.D., Stanford University.
- VANIER, DINOO T. (Mrs. D. K.) (1970).....Assistant Professor of Marketing
B.Com., Sydenham College of Commerce & Economics, Bombay; M.B.A., M.A., Ph.D., University of California.
- VARTANIAN, PERSHING (1968).....Assistant Professor of History
B.S., Wayne State University; M.A., Columbia University; Ph.D. candidate, University of Michigan.
- VASQUEZ, LIBRADO E. (1969).....Assistant Professor of Secondary Education
B.A., Pan American College; M.A., New Mexico Highlands University; Ph.D., University of Oregon.
- VASQUEZ, MARIA E. (Mrs. L. E.).....Assistant Professor of Mexican-American Studies
B.A., Pan American College; M.S., University of Oregon.
- VELEZ-I, CARLOS G. (1969).....Assistant Professor of Mexican-American Studies
B.A., M.A., University of Arizona.
- *VENIERIS, JOHN P. (1967).....Associate Professor of Economics
B.A., Graduate School of Economics and Business Administration, Athens, Greece; Ph.D., University of Oregon.
- VERGANI, GIANANGELO (1963).....Associate Professor of Italian
Dottorato in Lettere, University of Pavia, Italy; additional graduate study, University of California.
- VERGANI, LUISA (Mrs. G.) (1969).....Assistant Professor of Italian
Dottorato in Lettere, University of Milan.
- VEZIS, TIM T. (1970).....Lecturer in Athletics
B.A., University of Nevada.
- VILLARINO, JOE R. (1969).....Assistant Professor of Mexican-American Studies
B.S., M.A., Northern Arizona University.
- VILLONE, ARNOLD L. (1968).....Assistant Professor of Mathematics
B.S.E.E., University of Buffalo; M.A., Ph.D., University of California, Los Angeles.
- VINTON, ROBERT (1970).....Physician
B.S., University of Santa Clara; M.D., University of California, Irvine.
- VOEKS, VIRGINIA W. (1949).....Professor of Psychology
B.S., M.S., University of Washington; Ph.D., Yale University.
- VOLZ, ELAINE C. (Mrs.) (1951).....Evaluations Officer
B.S., University of Wisconsin.
- †VOORHIES, BARBARA (1969).....Assistant Professor of Anthropology
B.S., Tufts University; Ph.D., Yale University.
- WADE, KENNETH S. (1964).....Associate Professor of Accounting
B.S., United States Military Academy; M.S., San Diego State College; Ph.D., University of California, Los Angeles.
- WADSWORTH, EARL P., JR. (1956).....Professor of Chemistry
B.S., M.S., University of New Hampshire; Ph.D., Iowa State College.
- †WAGNER, RICHARD V. (1969).....Assistant Professor of Anthropology
B.A., M.A., Ph.D., University of California.
- WAGSTAFF, RONALD A. (1970).....Assistant Professor of Mechanical Engineering
B.S., Westminster College; M.S., Ph.D., University of Miami.
- WALBA, HAROLD (1949).....Professor of Chemistry
B.S., Massachusetts State College; Ph.D., University of California.

‡ On leave, year 1970-71.

* On leave, fall 1970-71.

- WALCH, HENRY A., JR. (1955).....Professor of Microbiology
B.A., Ph.D., University of California, Los Angeles.
- WALKER, DONALD E. (1968).....Vice President for Academic Affairs;
Professor of Sociology and Public Administration
A.B., M.Th., University of Southern California; Ph.D., Stanford University.
- WALKER, JAMES W. (1970).....Assistant Professor of Management
B.S., Millikin University; M.A., Ph.D., University of Iowa.
- WALKER, LLOYD A. (1965).....Assistant to the President
B.Ed., University of California, Los Angeles; graduate study, New York University and San Diego State College.
- WALLACE, ROBERT D. (1957).....Professor of Art
B.A., M.A., Stanford University; D.Litt., University of Geneva.
- WALLACE, WILLIAM J., JR. (1969).....Assistant Professor of Physical Science
B.A., St. Michael's College, Vermont; M.S., Tuskegee Institute; M.S., Ph.D. candidate, Oregon State University.
- WALSH, JAMES L. (1962).....Associate Professor of Spanish
B.A., University of Nevada; M.A., Mexico City College; Ph.D., University of Illinois.
- WALSH, M. AGNES (Mrs. W. E.) (1955).....Associate Professor of Elementary Education
B.S., Northwestern University; M.A., Teachers College, Columbia University.
- WALSHOK, MARCO G. (1969).....Assistant Professor of Public Administration and
Urban Studies
B.A., University of Southern California; doctoral candidate, Indiana University.
- WANLASS, DOROTHY C. (1955).....Professor of English
B.S., Utah State University; M.A., Ph.D., Columbia University.
- WARBURTON, JOHN T. (1968).....Associate Professor of Educational Administration
B.A., University of California; M.A., San Diego State College; Ed.D., University of California, Los Angeles.
- WARD-STEINMAN, DAVID (1961).....Professor of Music
B.M., Florida State University; M.M., D.M.A., University of Illinois.
- WARMER, MARGERY ANN (Mrs. J. C.) (1956).....Dean of Activities
A.B., M.S., and additional graduate study at the University of Southern California.
- WARNER, BRADFORD B. (1967).....Educational Television Station Program Director
B.S., Kent State University.
- WARREN, EDWARD W. (1963).....Professor of Philosophy and Classical Languages
B.A., Stanford University; Ph.D., Johns Hopkins University.
- WARREN, E. JUNE (Mrs.) (1957).....Dean of Admissions and Records
B.S., Northern State Teachers College, South Dakota; M.A., San Diego State College; doctoral candidate, University of California, Los Angeles.
- WARREN, LEROY J. (1955).....Professor of Mathematics
B.A., College of Idaho; M.A., Ph.D., University of Oregon.
- WATSON, CATHERINE M. (Mrs.) (1970).....Assistant Professor of Social Work
B.S., Temple University; M.S.W., University of Michigan.
- WATSON, ELIZABETH V. (1968).....Assistant Professor of Social Work
B.A., Scripps College; M.S., University of Southern California.
- WATSON, LAWRENCE C. (1967).....Associate Professor of Anthropology
B.A., University of California, Los Angeles; M.A., University of Southern California; Ph.D., University of California, Los Angeles.
- †WEBB, C. R., JR. (1949, except 1964-66).....Professor of History
A.B., M.A., University of California; M.A., Ph.D., Harvard University.
- WEBB, EDWARD M., JR. (1964).....Director of Placement, Career Planning, and Financial Aids
A.B., M.S., San Diego State College; Ph.D., United States International University.
- *WEBER, DAVID J. (1967).....Associate Professor of History
B.S., State University of New York, College at Fredonia; M.A., Ph.D., University of New Mexico.
- WEDBERG, HALE L. (1959).....Professor of Botany
B.A., Los Angeles State College; Ph.D., University of California, Los Angeles.
- WEETER, RAYMOND D. (1966).....Associate Professor of Spanish
B.A., University of Utah; M.A., Universidad Nacional de Mexico; Ph.D., University of California.
- WEINBERGER, PAUL E. (1968).....Professor of Social Work
B.A., San Francisco State College; M.S.W., University of California; D.S.W., University of Southern California.
- WEIR, MARY J. (1970).....Assistant Professor of Library Science
A.B., Bethany College; M.S.L.S., Drexel Institute of Technology; C.A.S., University of Illinois.
- WEISSMAN, STANLEY N. (1962).....Associate Professor of Philosophy
A.B., Brooklyn College; Ph.D., Columbia University.
- WELLS, RICHARD W. (1961).....Associate Professor of Physical Education
A.B., Occidental College; M.A., San Diego State College.

† On leave, year 1970-71.

* On leave, fall 1970-71.

- WENDLING, AUBREY (1954).....Professor of Sociology
B.A., San Francisco State College; M.A., Ph.D., University of Washington.
- WERNER, JOAN T. (Mrs. R.) (1965).....Assistant Professor of Sociology
B.S., State College, Pennsylvania; M.E., Pennsylvania State University; Ph.D., Syracuse University.
- WESTERVELT, WILLIAM O. (1964).....Associate Professor of German
B.A., Colgate University; M.S., Elmira College; M.A., Ph.D., University of Southern California.
- WETHERILL, WILLIAM H. (1957).....Professor of Elementary Education
B.Ed., University of Toledo; M.A., Stanford University; Ph.D., University of Michigan.
- WHEELER, JAMES L. (1968).....Assistant Professor of English
A.B., M.A., Ph.D. candidate, University of California, Los Angeles.
- WHITBY, JOAN A. (1968).....Assistant Professor of Physical Education
B.S., Carthage College; M.S., Arizona State University.
- WHITMAN, DAVID G. (1969).....Assistant Professor of Mathematics
B.A., M.S., Emory University; Ph.D., University of California, Riverside.
- WHITNEY, DANIEL D. (1966).....Associate Professor of Anthropology
B.A., M.A., Ph.D., Michigan State University.
- WHITNEY, FREDERICK C. (1970).....Assistant Professor of Journalism
A.B., M.S., San Diego State College.
- WICK, ARNE N. (1958).....Professor of Chemistry
B.S., M.S., Ph.D., University of Minnesota.
- †WIDMER, KINGSLEY (1956).....Professor of English
B.A., M.A., University of Minnesota; Ph.D., University of Washington.
- WIJNHOLDS, HEIKO DEB. (1970).....Lecturer in Marketing
B.Com., University of Pretoria; M.Com., D.Com., University of South Africa.
- WIJNHOLDS, HEIKO W. J. (1967).....Associate Professor of Finance
LL.B., University of Potchefstroom, South Africa; Jur. D. (Econ.), University of Utrecht.
- WILCOX, ROBERT F. (1950).....Professor of Public Administration and Urban Studies
A.B., M.A., Stanford University; M.A., Columbia University; Ph.D., Stanford University.
- WILDING, JOHN H. (1960).....Professor of Elementary Education
B.Arch., Catholic University of America; M.A., Teachers College, Columbia University; Ed.D., University of Southern California.
- WILHELM, BETTY J. (1961).....Assistant Professor of Physical Education
B.S., University of Wisconsin; M.A., University of Michigan.
- WILLERDING, MARGARET F. (1956).....Professor of Mathematics
A.B., Harris Teachers College; M.A., Ph.D., St. Louis University.
- WILLIAMSON, GLORIA R. (Mrs. C.) (1961).....Assistant Professor of Physical Education
A.B., M.A., Los Angeles State College.
- WILLIAMSON, JAMES E. (1968).....Associate Professor of Accounting
B.A., Northland College; M.S., Ph.D., University of Minnesota.
- WILLIAMSON, NANCEE B. (1969).....Financial Aids Counselor
B.S., West Virginia University; M.A., Ohio State University.
- WILLIS, GEORGE C. (1967).....Assistant Professor of Physical Education
B.A., M.A., California State College, Los Angeles.
- WILSON, GALEN (1969).....Assistant Professor of Music, Imperial Valley
B.A., M.A., University of California, Los Angeles; D.M.A., University of Southern California.
- †WILSON, WILFRED J. (1963).....Professor of Zoology
A.B., Sacramento State College; M.A., Ph.D., University of California, Davis.
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- WINSLOW, ROBERT W. (1965).....Associate Professor of Sociology
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- WOLF, ERNEST M. (1947).....Professor of German
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- WOO, CATHERINE C. (Mrs. P. C.) (1970).....Lecturer in Classical and Oriental Languages
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- WOODLE, GARY L. (1966).....Assistant Professor of French
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- WOODSON, JOHN H. (1961).....Professor of Chemistry
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- WULBERN, JULIAN H. (1966).....Associate Professor of German
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- WYLIE, DONALD G. (1966).....Associate Professor of Telecommunications and Film
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- Yahr, CHARLES C. (1955).....Professor of Geography
B.S., Illinois State Normal University; Ph.D., University of Illinois.
- YANIZYN, JAMES E. (1962).....News Bureau Coordinator
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- YANKEY, DAVID B. (1969).....Assistant Professor of Finance
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- YARBOROUGH, JOHN M. (1959).....Director of Housing
B.S., Texas Agricultural and Mechanical College; M.A., Ed.D., Stanford University.
- YAREMKO, ROBERT M. (1969).....Assistant Professor of Psychology
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- YATES, CHARLES D. (1970).....Assistant Professor of Music
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- YESSELMAN, CHARLOTTE B. (Mrs. M.) (1967).....Assistant Professor of Special Education
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- YOUNG, ARTHUR (1967).....Associate Professor of Astronomy
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- YOUNT, JANICE M. (Mrs. R. V.) (1969).....Assistant Professor of Home Economics
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- ZAMPESE, ERNEST E. (1967).....Assistant Professor of Athletics
B.S., M.A., California State Polytechnic College, San Luis Obispo.
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JOHN R. ADAMS, Ph.D., Chairman, Division of Humanities; Professor of English	1928-1968
MARVIN D. ALCORN, Ed.D., Professor of Secondary Education	1941-1969
JULIA G. ANDREWS, M.A., Associate Professor of Art	1947-1957
GUINIVERE K. BACON, M.A., Associate Professor of Elementary Education	1928-1969
KENNETH E. BARNHART, Ph.D., Professor of Sociology	1939-1964
BAYLOR BROOKS, B.A., Professor of Geology	1931-1966
ELIZABETH M. BROWN, Ph.D., Professor of French	1926-1968
EUGENE P. BROWN, M.A., Professor of Accounting	1947-1966
LESLIE P. BROWN, Ph.D., Professor of Spanish and French	1922-1959
GAIL A. BURNETT, Ph.D., Professor of English and Classics	1947-1968
ROY E. CAMERON, Ph.D., Professor of Economics	1929-1963
HILDING B. CARLSON, Ph.D., Professor of Psychology	1948-1969
NORITA N. COMIN, M.A., Associate Professor of Home Economics	1949-1963
HELEN S. CLARK, B.A., Assistant Professor of Mathematics	1952-1967
KATHERINE E. CORBETT, M.A., Associate Professor of Education	1921-1956
LORENZ F. deJULIEN, M.B.A., Lecturer in Marketing	1949-1967
FLORENCE S. DICKHAUT, M.A., Professor of English	1917-1952
ARTHUR T. EMERSON, B.S., Assistant Professor of Mathematics	1952-1964
CHARLES J. FALK, S.T.D., Professor of Secondary Education	1957-1969
WALTER B. FORD, B.E., Assistant Professor of Industrial Arts	1953-1963
LULA E. GERMANN, B.S., Supervising Librarian	1925-1956
SIDNEY L. GULICK, Ph.D., Dean of Arts and Sciences; Professor of English	1945-1969
EDITH C. HAMMACK, B.A., Associate Professor of Education	1911-1950
ISABELLA S. HAMMACK, M.A., Associate Professor of Education	1936-1957
DOROTHY R. HARVEY, M.A., Assistant Professor of Botany	1924-1961
ROBERT D. HARWOOD, Ph.D., Professor of Zoology	1928-1969
GERALDINE K. HAYNES, B.S.L.S., Supervising Librarian	1931-1961
CHARLES M. HUFFER, Ph.D., Professor of Astronomy	1961-1968
EVERETT GEE JACKSON, M.A., Professor of Art	1930-1963
FRANK L. JOHNSON, Ph.D., Professor of English	1939-1966
JOSEPH S. KEENEY, Ph.D., Professor of English	1933-1963
CHESTER B. KENNEDY, Ph.D., Professor of English	1937-1969
WILLIAM M. KIDWELL, Ed.D., Director of Placement and Financial Aid; Professor of Psychology	1949-1970
JAMES S. KINDER, Ph.D., Professor of Education	1953-1966
ANGELA M. KITZINGER, Ph.D., Professor of Health Education	1945-1969
JAMES M. LINLEY, Ph.D., Professor of Secondary Education	1945-1970
LAWRENCE W. LUCE, Ed.D., Professor of Industrial Arts	1949-1969
RICHARD MADDEN, Ph.D., Professor of Education	1939-1966 (except 1961-64)
ERNEST L. MARCHAND, Ph.D., Professor of English	1946-1968
IVAN N. McCOLLOM, Ed.D., Professor of Psychology	1946-1970
MARY MENDENHALL, Ph.D., Professor of Philosophy	1939-1963
VINNIE C. MOLITOR, A.B., Associate Professor of Geography	1914-1938

MABEL A. MYERS, Ph.D., Professor of Microbiology.....	1946-1970
NEVA E. NYE, M.Litt., Professor of Nursing.....	1953-1970
LAUREN C. POST, Ph.D., Professor of Geography.....	1937-1969
ILSE H. RUOCCO, M.A., Professor of Art.....	1934-1967
FREDERICK L. RYAN, Ph.D., Professor of Economics.....	1946-1965
FRANCES I. SCHALLES, A.B., Education and Curriculum Materials Librarian.....	1950-1968
MARION L. SCHWOB, M.S., Associate Professor of Physical Education.....	1934-1960
FLORENCE S. SHANNON, M.S., Associate Professor of Physical Education.....	1933-1963
CLIFFORD E. SMITH, Ph.D., Professor of Astronomy.....	1937-1969
DEANE F. SMITH, M.Mus., Associate Professor of Music.....	1939-1970
LEILA D. SMITH, M.A., Professor of Music.....	1922-1948
CHARLES C. SPORTSMAN, M.S., Associate Professor of Physical Education.....	1947-1968
CHRISTINE SPRINGSTON, M.A., Professor of Music.....	1930-1966
HARRY C. STEINMETZ, Ph.D., Associate Professor of Psychology.....	1930-1954
RUTH A. TALBOY, M.A., Associate Professor of Home Economics.....	1947-1963
JOHN A. TERHUNE, M.S., Assistant Professor of Physics.....	1947-1965
JOHN R. THEOBALD, Ph.D., Professor of English.....	1946-1969
FRANCES B. TORBERT, M.A., Professor of Management.....	1937-1969
WOLCOTT C. TREAT, Ph.D., Professor of Psychology.....	1950-1966
HILDE K. WALKER, M.A., Assistant Professor of German.....	1931-1951
CURTIS R. WALLING, E.E., Professor of Electrical and Electronic Engineering.....	1931-1969
DONALD R. WATSON, Ed.D., Vice President for Academic Affairs; Professor of Physical Science.....	1939-1968
ALFRED E. WHITE, Ed., Assistant to Dean of the College; Professor of Education.....	1946-1964
ERNEST F. WITTE, Ph.D., Professor of Social Work; Dean of the School of Social Work.....	1963-1969
WILLIAM H. WRIGHT, Ph.D., Professor of Accounting.....	1921-1962

INDEX

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